June 30, 1958

Paper Trade Journal

Sonoco Completes Expansion, Dedicates New Machine

Supply and Demand for Pulp, Paper and Board

How Cuban Mill Cleans, Depiths Bagasse

Select the Right Valve For the Particular Service

Sheet Behavior at Open Draw Before Press

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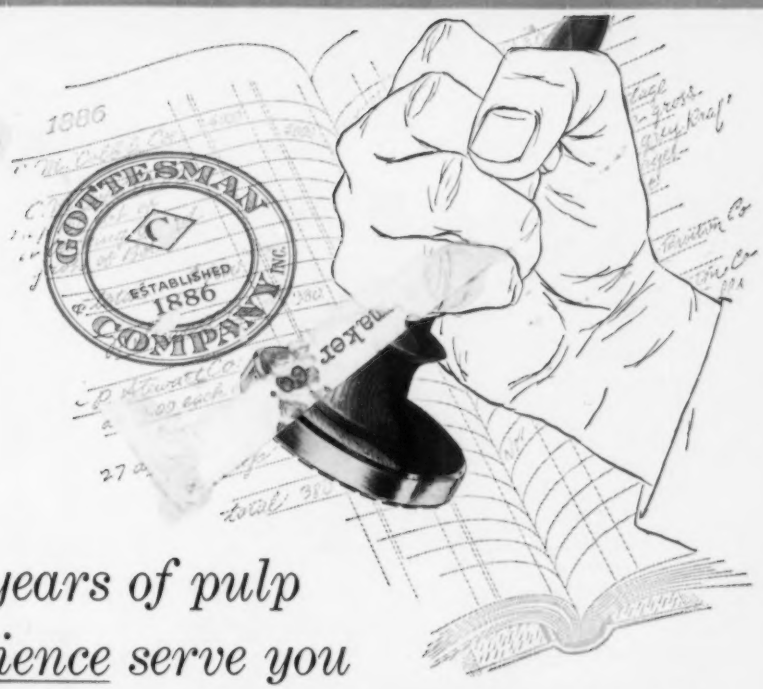

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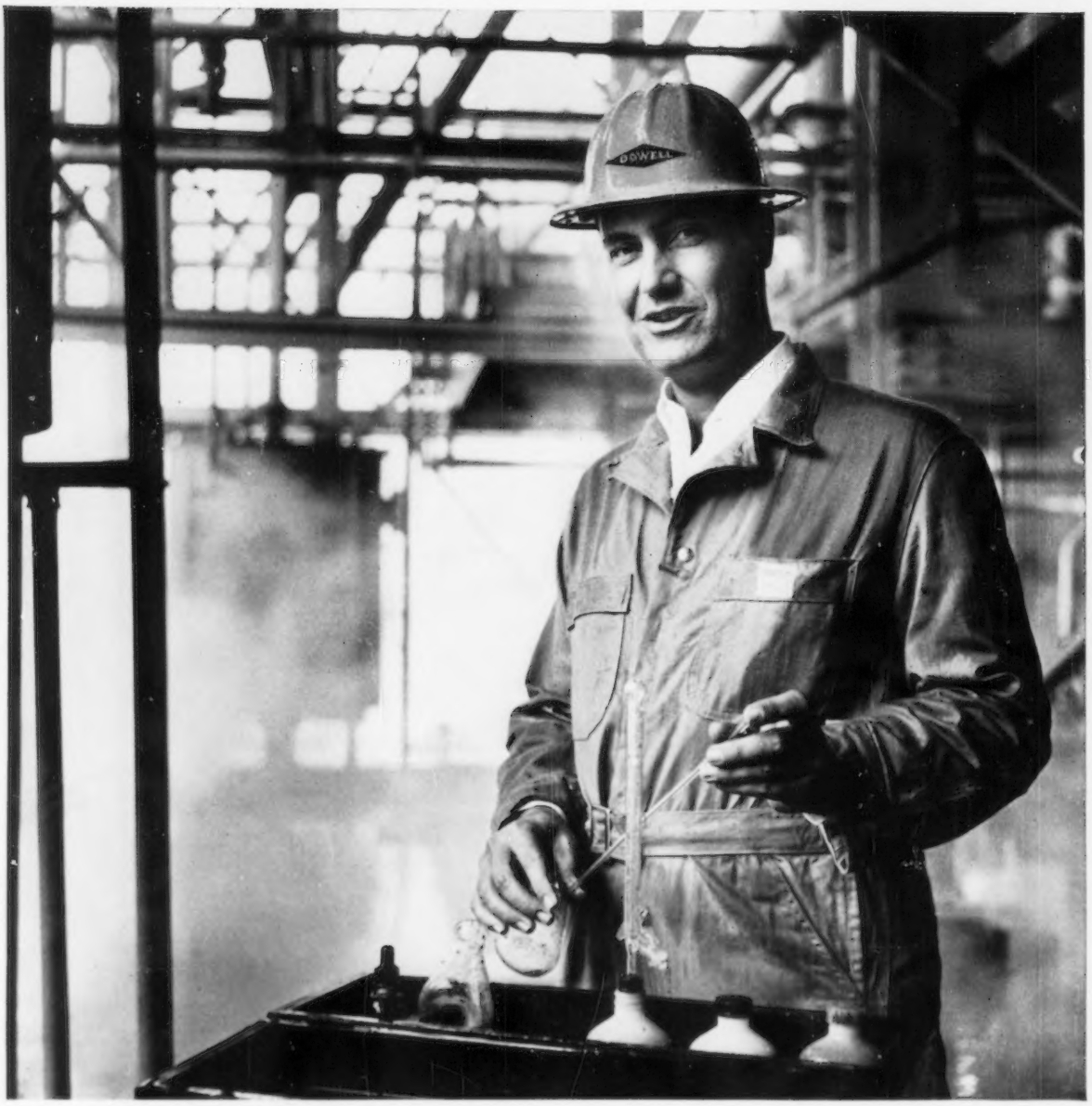

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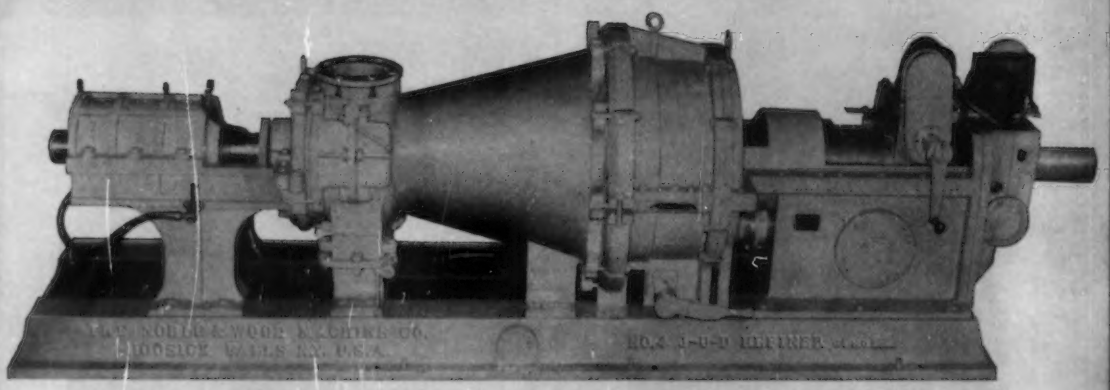

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REMEMBER THESE DATES

July 28-Aug. 1: TAPPI Engineering Conference, Multnomah Hotel, Portland, Ore.

Sept. 10-12: Third International Mechanical Pulping Conference sponsored jointly by Technical Section, Canadian Pulp and Paper Assn. and Technical Assn. of Pulp and Paper Industry; Chateau Frontenac, Quebec City.

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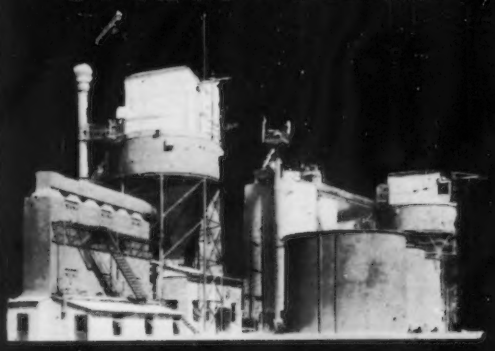

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TRENDS

JUNE 30, 1958

Our Optimism Seems Justified

The optimistic item "More Signs of an Upswing" in last week's Trends seems to have been justified, as more hopeful signs continue to appear.

Mill Operating Rates Up?

Paper and board mill operating rates seem to have turned upward in mid-June.

Pulp Prices Unchanged

There were no price changes announced for the third quarter. There are however very large quantities of "off-standard" pulp being produced at the present time.

Chemical Prices Being Trimmed

Price cutting on many grades of industrial chemicals is reported to be rampant. The posted prices are not being lowered, the reductions are said to be specially negotiated or special secret discounts.

Eastern Waste Paper Picture

The oversupply situation in waste paper which has prevailed in the East for many months has tightened up considerably. Corrugated is especially active, and a small price increase in this grade sometime next month seems probable.

Not Typical of All Grades

"You wouldn't need a boat load of pulp or paper, would you?"

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licks 281 corrosives

Lab tests have shown that versatile Ryertex®-Omicron PVC will resist 281 corrosive solutions and gases . . . including acids, alkalies, waste products, etc. If you have a corrosion problem, a Ryerson specialist can quickly tell you whether Ryertex-Omicron PVC is your answer.

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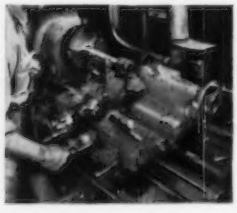
Typical applications of PVC

Pulp lines, chlorine lines, chlorine gas distributors, white-water tanks, sizing tanks, head boxes, troughs, blowers, flow boxes and baffles, beater linings, fan housings, bars and girths, trays and pulp measuring devices.

Pipe. From ½" to 12" in diameter. Valves, flanges, and fittings to match.

Sheets. Extruded, ½" thru 3/8" x 40" x any length. Molded, ½" up, 48" x 96".



Rods. Round machining stock from ¼" to 2" in diameter. Welding rods also.

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Sonoco Starts Up Number 10 Machine

The new 175-ton per day paper machine (Number 10) at the Sonoco Products Co., Hartsville, S. C. mill was officially put into operation in a special ceremony last week in the presence of 300 out-of-town guests. The company operates some 12 manufacturing plants throughout the United States, one in England and one in Australia.

During the ceremony, C. W. Coker, executive vice president, told of the beginnings of the company and concluded by dedicating the "No. 10" machine to P. L. McCall. The new unit has been named "Mr. Mac" at the request of the men of the corrugating division who worked with the veteran paper maker in the erection of the new unit.

Mr. Coker pointed out that Sonoco contracted for its first paper machine in 1892 at a total cost of $199,050, while the new installation exceeded the $10 million mark.

The new Black-Clawson paper machine will produce .009 corrugating board from semichemical pulp.

Fibreboard Starts Big Dust, Odor Control Job

Installation of dust and odor control equipment valued at nearly two-thirds of a million dollars has been completed at San Joaquin kraft pulp and board mill of Fibreboard Paper Products Corp.

The equipment includes a new flue gas washer with a capacity for cleaning 140,000 cubic feet of gas a minute. To coordinate the new equipment with existing control devices, both precipitators now operating at the mill were completely renovated.

Other major components are a 10,000 cubic foot gas holder to absorb gases released when a digester is blown; a 40-foot high black liquor oxidizing tower, and a gas incinerating furnace capable of burning gases at 1500° F.

The new gas incinerating furnace, which is 80 feet high, is capable of oxidizing gases at temperatures high enough to render them relatively odorless, according to projected engineering specifications.

Hennepin Completes Improvement Program

Hennepin Paper Co., Little Falls, Minn. announces completion of the installation of a new Deculator air removal system in conjunction with a battery of Bauer centrifugal cleaners. These installations were accomplished with a negligible loss of production and the mill is back on full operation.

Following the recently completed rebuilding of the wet end of the Fourdrinier, these installations are expected to increase production from 20-25 per cent, along with a substantial improvement in the qualities of the company's groundwood printing, converting and specialty papers. Other recent improvements include a renovated dryer section, rebuilt No. 1 calender stack, and installation of a new Mason-Neilan moisture control unit.

The above installations complete a long range modernization program for the Hennepin mill which began in 1953, and which has resulted in increasing the mill's production capacity by approximately 50 per cent mostly through increased machine speeds but also through widening the maximum trim from 110 to 113 inches.

Chapwood Building Board Mill Sold

The building board plant of Chapwood, Inc. at Philomath, Ore. has been sold by the owner, Ralph Chapman, to the following local business men: M. Bevandich, B. N. Woods, D. Reynolds plus A. Fleming of Kansas City, Kan.

The plant produces a medium density board from wood chips and waste paper in a process developed by Mr. Chapman. The plant began production in June 1956 and was destroyed by fire shortly thereafter. It was completely rebuilt and went into production just about a year ago.

Mead Subsidiary Acquires Grand Rapids Box Plant

Mead Containers Inc., wholly owned subsidiary of Mead Corp., is acquiring the total assets of the Grand Rapids Container Co., Grand Rapids, Mich.

The Grand Rapids Container Co. was organized in 1946 by W. B. Jensen, president, R. E. Kearns, vice president, and W. H. Stehouwer, secretary, who had formed a partnership of the same name in 1945.

The Grand Rapids plant employs 100 men and women producing corrugated shipping containers and corrugated packaging for the automotive, furniture, and other industries.

There will be no change in the management and personnel of the Grand Rapids Container Co. plant, which will operate as the Grand Rapids Division of Mead Containers, Inc.

Donohue Acquires Nairn Falls

On July 1 the Nairn Falls Pulp Co. mill at Clermont, Que. will be absorbed by Donohue Bros. Ltd. The Nairn Falls mill, owned by a Scott Paper Co. subsidiary, is located within the mill buildings of the Donohue groundwood and newsprint mill on the same site and has been managed and operated by Donohue for Scott. Donohue is now in the process of installing an additional paper machine at Clermont.

To Explore St. Regis Limits for Oil

A thorough geophysical study of some 200,000 acres of St. Regis Paper Co. lands in Florida and Alabama will be made during the next 18 months by Magnolia Petroleum Co., subsidiary of Socony Mobil Oil Co., Inc., according to an agreement announced by the companies today.

If Magnolia should find areas indicative of oil-bearing formation during the exploration period, it will have development rights extending, under certain conditions, over the next five years.

According to the agreement, the lands of the paper company covered are located in the southern part of Baldwin County, Ala., and in Escambia, Santa Rosa and Okaloosa counties in Florida. Florida Oil and Gas Co. and others own undivided mineral rights in certain areas of these lands.

TAPPI Plans Plastics Conference

Plans are well in hand for the 13th Plastics-Paper Conference of the Technical Association of the Pulp and Paper Industry, to be held at the Sheraton-Kimball Hotel, Springfield, Mass., October 20-22.

Program Chairman R. George Hochschild of Koppers Co. has announced four half-day sessions:

"Extrusion Coating of Nylon and Linear Polyethylene"

"Performance of New Paper—Thermoplastic Resin Combinations"

"Performance of New Paper—Thermosetting Resin Combinations"

"Fundamental Aspects of Fiber-Plastics Combinations"

The official banquet of the conference will feature Arthur Bronwell, president of Worcester Polytechnic Institute, who will discuss the subject, "Can We Maintain a Philosophy of Progress?"

After the two days of technical meetings, delegates will have an opportunity to visit the Monsanto Chemical Co. plant in Springfield, the Strathmore Paper Mill in Woronoco, and other plants of interest in the Springfield-Holyoke area.

May Newsprint Statistics

Production of newsprint in North America during May, 1958 amounted to 697,026 tons and was 6.3 per cent under the all-time May peak attained in 1957. Shipments totaled 708,115 tons in May, 1958 and were 5.2 per cent below shipments in the corresponding month of 1957. According to the Newsprint Service Bureau, output in the United States was 149,038 tons and shipments were 146,742 tons and respective decreases from May, 1957 amounted to 12.9 per cent and 15.0 per cent. Canadian production amounted to 547,988 tons while shipments totaled 561,373 tons. Declines from the year ago levels were 4.4 per cent and 2.2 per cent respectively.

Production of newsprint paper in North America through the end of May, 1958 amounted to 3,307,839 tons which was 278,055 tons or 7.8 per cent below the historical high attained in the same period of 1957. United States mills produced 743,413 tons or 62,934 tons and 7.8 per cent less than in the first five months of 1957. Output in Canada amounted to 2,564,426 tons and was 215,121 tons or 7.7 per cent under the volume produced in the first five months of 1957.

North American manufacturers' stocks on May 31, 1958 aggregated 240,098 tons compared with 251,187 tons on the last day of the preceding month and 225,601 tons at the end of May, 1957. The continental total was composed of 18,334 tons and 221,764 tons held by United States and Canadian mills respectively and inventories were higher than a year ago by 8,721 tons in the former instance and by 5,776 tons in the latter.

Safety Record Needs Improving

The pulp and paper industry isn't doing as good a job as it can in preventing accidents to workers, a safety official has charged.

Earl F. Ripstra, general chairman of the National Safety Council's pulp and paper section, agrees that the industry has made "whopping gains" in preventing accidents.

He pointed out that, since 1920, mills reporting to the Council have reduced the frequency of accidents 84 per cent and severity by 68 per cent.

"The industry," Mr. Ripstra said, "is to be congratulated for this accomplishment. But we still have too many occupational injuries.

"Last year, participants in the pulp and paper section safety contest of the Council reported 5,441 disabling injuries. The frequency rate for the industry (exclusive of pulpwood logging) was 7.08, which means that one out of 70 persons in our industry suffered a disabling injury."

Mr. Ripstra, who also is personnel and safety director of the 35th St. plant of Container Corp. of America, Chicago, said a recent search by the Council's pulp and paper section for a "target for industry" turned up a symbol that depicts the target as "The Safest Industry."

Paper and Board Production

According to the American Paper and Pulp Assn., the ratio of the United States production to mill capacity for the week ending June 14, 1958, was 86.8 per cent compared with 82.2 per cent revised for the preceding week. The ratio was 94.8 per cent for the corresponding week a year ago.

The paperboard production ratio for the week ending June 14, 1958, was 90 per cent compared with 77 per cent for the preceding week and 94 per cent for the corresponding week last year.

(Detailed statistics on page 43.)

Bark Yields Weatherproof Adhesive for Plywood

Rayonier's Olympic Research Division, Shelton, Wash., reports a new silvichemical from tree bark which successfully yields a low-cost, weatherproof, thermosetting adhesive for plywood. The new bark extract, designated as HT-120, is said to have proved to be a successful intermediate agent in the formulation of a plywood bonding agent. The resulting adhesive, it is reported, meets all present commercial requirements for exterior type plywood.

HT-120 is chemically extracted from the bark of western hemlock. When it is combined with polymethylolphenol with a high proportion of reactive methylol groups, a bonding agent is formed substantially reducing the phenol normally required in plywood adhesives for outdoor uses.

During the hot press operation, the polymethylolphenol reagent acts as a crosslinking and co-polymerization agent for the bark extract. The result is a weatherproof wood bond which has been extensively tested in Douglas fir plywood.

The new adhesive based on HT-120 can be produced in a dry form or as a 40 to 45 per cent solids solution that is quite stable at ordinary temperatures, the silvichemists said. This thermosetting adhesive is fast curing and within the range for commercial acceptance for exterior plywood. The adhesive formulation calls for 49 per cent bark extract, 34 per cent polymethylolphenol and 17 per cent filler on a solids basis.

PAPER PEOPLE

Boise Cascade Promotes Fery

Boise Cascade Corp. has appointed John B. Fery as general manager of the Boise Cascade Paper Division. He will be responsible to the president for all production and sales operations of the container plants at Wallula, and Burley, Idaho, as well as the paper mill now being built at Wallula.

Mr. Fery came to Boise Cascade from Albany, Ore. in February 1957. During the past 17 months he has been working in the paper division as assistant to the president. At the beginning of the company's building program, Mr. Fery was transferred from Boise to Walla Walla, where he will continue to maintain his office.

Werthan Joins Knowlton Brothers

George B. Werthan has been named to the sales staff of Knowlton Brothers, Watertown, N. Y., manufacturers of specialized industrial papers.

Mr. Werthan's appointment coincides with completion of a million dollar modernization and expansion program. The Watertown firm, which this year marks its 150th anniversary, is directing its sales and research activities to the development of new uses of special papers in such fields as electronics, communications, automotive, and chemical processing.

Mr. Werthan will serve as assistant to vice president Robert W. McCormick.

Hammermill's Krimmel Retires

Maxamillian A. Krimmel, supervisor of plastic paper sales for the Hammermill Paper Co., Erie, Pa. since 1949, has retired. He had served the Hammermill organization since 1913.

Widely known among the technical section of the fine paper industry, Max Krimmel is recognized as one of the pioneer chemists in the fine paper field. From 1921 until 1942, he was assistant director of the Hammermill Laboratories. In 1942, he became plastics department manager, continuing in that job until his 1949 transfer to sales work. He is a former president of TAPPI.

D. D. Hall

Named Eastern's General Manager

D. D. Hall, formerly materials handling manager of E. B. Eddy Co., Hull, Que., is now assistant to the vice president and general manager at Eastern Corp.

Noralyn Names Two for Board

Two men have been named vice presidents and members of the board of Noralyn Paper Mills, Inc., in Baton Rouge, La.

They are A. J. Navarre, formerly general plant superintendent for Orange Pulp and Paper Mills in Orange, Tex.; and J. H. Ainsworth, formerly employed in a technical capacity with Thilmany Pulp & Paper Co., Kaukauna, Wis.

Their initial work will be with Barnard and Burk, Inc., consulting engineers, who are designing a plant and its production processes and with the engineering staffs of equipment manufacturers.

St. Regis Names Director of Purchases

St. Regis Paper Co. announces the appointment of Jack W. Hartung as director of purchases for the company. He has been manager of the purchasing department since April 1955.

Mr. Hartung, who was formerly purchasing agent for the Kalamazoo paper mill, joined St. Regis in 1941.

Gerace Named Manager of Sartell Mill

St. Regis Paper Co. has appointed Thomas Gerace as resident manager of the company's Printing Paper Division mill at Sartell, Minn.

Mr. Gerace was assistant to U. J. Westbrook, manager of pulp production for St. Regis pulp mills, and also served as pulp mill superintendent of St. Regis' northern New York mills.

Mr. Gerace succeeds William S. Woodward, who has resigned.

Baruh Receives CZ 60-Year Award

An employee of Crown Zellerbach for the first time since the corporation was founded has received a 60-year service award. The recipient is Joseph Y. Baruh, honorary vice president and member of the Crown Zellerbach board of directors.

Mr. Baruh joined the corporation as Los Angeles manager for the then A. Zellerbach & Sons in 1898. After building up the corporation's business as Los Angeles manager for over 30 years, he was made a vice president of Zellerbach Paper Co. in 1929. In 1931 he was elected vice president of Crown Zellerbach Corp.

Canada Paper Co. Appoints Symons

G. D. F. Symons has been appointed eastern sales manager of Canada Paper Co. Mr. Symons has held various positions in the order and sales departments during the past 14 years. He will be located in the head office in Montreal.

CZ Staff Changes

Crown Zellerbach has recently made the following staff changes:

Dean K. Olsen, senior industrial engineer, West Linn—to sheet finishing superintendent, West Linn.

Henry W. Seibel, Gaylord laboratory supervisor—to assistant laboratory manager, Gaylord Research & Development division, St. Louis headquarters.

Manual A. Rosa, Gaylord laboratory technician — to laboratory supervisor, Gaylord Research & Development division.

MacAndrews & Forbes Add to Sales Staff

MacAndrews & Forbes Co., Camden, N. J. has added J. Rodney Edwards to the sales staff of their Paperboard Division.

Fibre Can Assn. Elects Officers

National Fibre Can and Tube Assn. has elected Martin H. Stark president. Mr. Stark is president of the Arrow Paper Products Co., Saginaw, Mich. George R. Browner, was elected vice president of the association and Leo A. Warmuth was named treasurer. Mr. Browner is associated with Mead Board Sales, Inc. Mr. Warmuth is president of the W. C. Ritchie division of the Stone Container Corp.

St. Regis Promotes Three at Pensacola

Wilbur L. Orr has been named manufacturing superintendent, pulp and paper mills, at St. Regis' Pensacola, Fla. plant. He succeeds W. B. Mills who has been assigned to northern specialty kraft paper sales.

Replacing Mr. Orr as pulp mill superintendent is Richard G. Cohn. Lewis H. White becomes assistant superintendent of No. 1 pulp mill.

IP Promotes Livingston

Paisley Livingston, formerly of International Paper's Moss Point mill engineering staff and more recently on construction at bleached board and newsprint mill at Pine Bluff, Ark., has been promoted to assistant to the pulp mill coordinator for the Southern Kraft Division in Mobile, Ala.

Union Bag-Camp Changes at Savannah

Eight promotions among supervisory personnel of Union Bag-Camp's Savannah plant were recently announced by the company following the resignation of J. J. Ward, general power and maintenance superintendent who accepted a position with Champion Paper & Fibre.

Organizational changes in the Pulp and Paper Division were: T. C. Johnson, general operating superintendent, promoted to assistant manager of the division. John A. Fielding, who has been serving as construction engineer since 1951, promoted to general power and maintenance superintendent. J. M. Piette, pulp mill engineer since 1953, to general operating superintendent.

R. C. Hall, who has been serving as assistant superintendent since 1951, promoted to pulp mill superintendent. J. E. Hunperpiller becomes overall assistant superintendent in the pulp mill, and W. L. Smith becomes assistant superintendent. Cary W. Rogers is promoted to shift foreman.

Principal change in the Construction Division is the promotion of W. J. Sundahl to construction engineer.

Fundamental Research Symposium Program

The final program for the Third International Fundamental Research Symposium, entitled "Properties of Hardwoods and Their Relation to Pulp and Manufacture," has now been released by the program committee.

Jointly sponsored by the Fundamental Research Committees of TAPPI and the Technical Section, C. P. P. A., the Symposium will take place September 15 to 17 at the new Queen Elizabeth Hotel, Montreal, Quebec, Canada.

Sunday Evening

Registration and Get-together

Monday Morning

Registration
Opening Session—Dr. A. H. Vroom,

Chairman; Greetings — Dr. Ward D. Harrison, president of TAPPI.

Theme Address: "The Importance of Hardwoods to the Pulp and Paper Industry," D. W. Ambridge, president, Abitibi Power & Paper Co. Ltd., Toronto, Ontario.

"The Distribution and Availability of Hardwoods in North America," Professor D. V. Love, Faculty of Forestry, University of Toronto, Toronto, Ont.

"Improvement of Hardwoods through Genetics," Dr. Philip Joranson, Institute of Paper Chemistry, Appleton, Wis.

Buffet Luncheon

Monday Afternoon

The Structure of Hardwoods, Dr. H. F. Lewis, chairman.
"Growth Mechanisms in Hardwoods," Dr. Donald A. Fraser, Dominion Forest Service, Petawawa, Ont.
"Physical and Anatomical Characteristics of Hardwoods," Joseph D. Hale, Forest Products Laboratory, Ottawa, Ont.
"The Morphology of Hardwood Fibers," Dr. Paul W. Lange, Aktieselskapet, Borregard, Sweden.

Tuesday Morning

The Physics and Chemistry of Hardwoods
Dr. E. C. Jahn, Chairman
"The Strength of Interfiber Bonds in Hardwoods and Hardwood Pulps," Stig Lagergren and Dr. S. A. Rydholm, Billeruds Aktiebolag, Saffle, Sweden.
"The Penetration of Hardwoods," Dr. J. E. Stone and H. V. Green, Pulp & Paper Research Institute of Canada, Montreal, P.Q.
"The Carbohydrates of Hardwoods," Dr. J. K. Hamilton, Rayonier, Inc.
"Some Recent Studies of the Polysaccharides of White Birch and Other Hardwoods," Dr. T. E. Timell, Pulp & Paper Research Institute of Canada, Montreal, P. Q.

Tuesday Afternoon

The Chemistry of Hardwoods
Dr. C. B. Purves, chairman
"Hardwood Lignin," Dr. J. M. Pepper, University of Saskatchewan, Saskatoon, Sask.
"Hardwood Resin," Dr. D. B. Mutton, Industrial Cellulose Research, Ltd., Hawkesbury, Ont.
"Hardwood Extractives and Their Relation to Other Components," Dr. I. A. Pearl, Institute of Paper Chemistry, Appleton, Wis.

Wednesday Morning

Pulping and Bleaching of Hardwoods
Dr. W. H. Rapson, chairman

"Groundwood and Semi-Chemical Groundwood from European Poplar Wood," Dr. W. H. Brecht, Darmstadt Technical University, Germany.

Panel Discussion — "Pulping and Bleaching of Hardwoods"
Dr. W. H. Brecht
Dr. G. A. Day, Brown Company
Dr. W. B. Beazley, Industrial Cellulose Research, Ltd.
Dr. J. H. Ross, Pulp & Paper Research Institute of Canada
K. G. Chesley, The Crossett Company

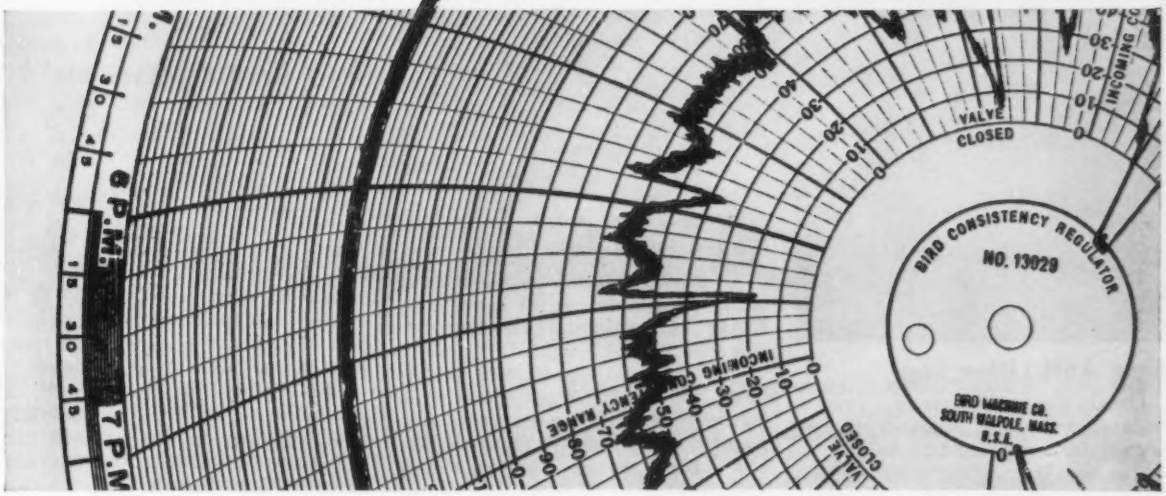
Wednesday Afternoon

Paper & Board-Making Properties of Hardwoods
Dr. Roy Whitney, chairman

Panel Discussion—"Paper and Board-Making Properties of Hardwoods"
Dr. B. Steenberg, Swedish Forest Products Laboratory, Stockholm, Sweden.
Dr. D. O. Adams, West Virginia Pulp & Paper Co.
Dr. D. T. Jackson, Hammermill Paper Co.
Dr. R. M. Dorland, Abitibi Power & Paper Co., Ltd.
Dr. R. D. Duncan, chairman, Technical Section, C.P.P.A.

DON'T WASTE STOCK BY RUNNING OVERWEIGHT

DON'T RISK REJECTS BY RUNNING UNDERWEIGHT



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NEWS OF CONVERTERS

New Anti-Litter Bag

Oneida Paper Products Inc., has announced that their company is sole licensee for a new anti-litter bag.

The new bag, called "Little Butler", features a self-sealing adhesive portion which serves a dual purpose. With the bag open, the adhesive is on the back so that it will adhere to any convenient smooth surface (such as the dashboard of a car). When the bag is filled, the top is folded down, and the adhesive portion then closes the container so that none of the contents can spill out.

Materials used in the construction of the "Little Butler" were selected for wet-strength so that it would withstand all ordinary and moist waste products. The surfaces, front and back, of the litter-bag may be imprinted with a variety of colors and messages.

W. Va. to Establish West Coast Bag Plant

Multiwall and grocery bag manufacturing operations are being established on the West Coast by West Virginia Pulp and Paper Co. The facilities will be located in a newly-constructed plant in Torrance, Calif., near Los Angeles, which will be in production July 1.

While the paper company long has supplied the commercial printing market on the West Coast, this marks the first time in its 70-year history that manufacturing operations have been established west of the Rockies.

Start-up of the paper company's new bag operations is being expedited by the purchase of multiwall bag-making machinery from Fulton Container Co. Inc. of Los Angeles, which will continue its textile bag business. Multiwall sales and manufacturing personnel now employed by the Fulton company will form the nucleus of West Virginia's new multiwall organization in California.

Plans are being made to expand the operations by installing additional multiwall equipment and a line of new grocery bag machinery.

CZ to Build New Corrugated Box Plant

A new corrugated box plant and storage warehouse are to be built by Crown Zellerbach Canada Ltd. in Kelowna, B. C., Canada.

The plant will manufacture finished boxes for the Okanagan Valley fruit industry, using corrugated sheets produced in the company's Richmond Division paper converting plant near Vancouver.

Container Corp.'s VP for Marketing

Container Corp. of America has announced that at a regular meeting of the board of directors, Henry G. Van der Eb was elected vice president in charge of marketing for the company's Folding Carton Division.

Formerly division general manager of Eastern folding carton operations, Mr. Van der Eb will be responsible for sales policy in industry markets where Container Corp.'s distribution is national in scope. He also will be in charge of research and development for the folding carton division and will retain his position as chairman of the division's marketing committee. He will continue to make his headquarters in Philadelphia.

Henry G. Van der Eb

Mr. Van der Eb joined Container Corp. in 1946 in Philadelphia. After serving for several years as administrative assistant at the main office in Chicago, he returned to Philadelphia in 1952 to become general manager of the folding carton plant. In 1954, he was appointed Division General Manager, with responsibility for folding carton plants in Philadelphia, Boston, Valley Forge, Pa., and Greensboro, N. C.

Wolf Brothers Expands Plant Facilities

Wolf Brothers, Philadelphia, announces the completion of the first phase of a plant and equipment expansion program. A spokesman for Wolf Brothers said the initial equipment expenditures were in excess of a quarter of a million dollars.

In addition, more than 65,000 sq. ft. of space has been added to accommodate the installation of new high speed printing and bag making equipment.

The expanded facilities include the integration of the Wolf Brothers' Box Manufacturing Division and will provide improved customer service, as well as operating economies.

Vaculite Appoints New Management Team

The board of directors of the Vaculite Corp., Cambridge, Mass., has appointed a management team to operate the firm.

Charles G. Ellington, of Champion Paper and Fibre Co., Hamilton, Ohio, will be vice president and general manager. Allan R. Dragone, of National Research Corp., Cambridge, will be vice president for sales. Frank Carter, of Champion, will be production manager.

Henry W. Rigby, Champion's vice president, corporate development, will remain president of Vaculite, a position he assumed when Champion purchased half of the firm, a subsidiary of National Research Corp., last December.

In addition to the three new officials, it was announced that Robert D. Keppler would become sales engineer for the Vaculite Corp.

"Vaculite" metallized paper, produced by a high vacuum process developed by National Research Corp., is a highly reflectant metallic coated sheet with the appearance of polished aluminum. It can be processed like paper in all converting equipment. Inherent advantages of this paper over other metallics are said to eliminate

or reduce many converting problems such as web handling, curl, drying, adhesives, delamination and moisture mold.

A few of the possible packaging applications for metallized paper include: decorative and holiday papers, overwraps and labels for cans and bottles, detergents and food products including margarine, ice cream, popsicle and potato chip bags. Vaculite will make available limited commercial quantities of metallized paper to the packaging industry the latter part of this year.

Adams Promoted at Western-Waxide

Stanley Adams, assistant superintendent of Crown Zellerbach's Western-Waxide Los Angeles plant has been promoted to superintendent. Mr. Adams joined Western-Waxide in 1953 in senior chemist, product research and development laboratory. In 1954 he became assistant supervisor, technical, in Los Angeles and, in 1956, assistant superintendent.

Promotions at Diamond Gardner

Two promotions and one appointment are announced at the Diamond Gardner Corp.

Gene Cramer has been appointed manufacturing assistant to vice president, fabricating sales; Ned Turner was promoted to superintendent, Lockland carton plant; and Russell Smith moved up to superintendent, Middletown carton plant.

"Extra-Use" Packaging of Christmas Tissues

Bright new wrappers and packages are featured on Crystal Tissue Co.'s 10 and 25 cent tissue folds, rolls and cutter boxes for 1958 Christmas selling.

Bright colors and clean design improve display and instantly identify tissue types for shoppers. "Family" resemblance in all packages encourages mass display to develop multiple sales per customer. "Extra-Use" ideas, listed on the back of each package are designed to boost the amount of tissue each consumer uses.

Among new items in the Crystal Christmas line are new folds and cutter boxes of Radiant Sequin Tissues, with sparkling sequins imbedded in white and colored tissues for inside and outside wrapping needs. In addition to white and holiday colored tissues, Crystal is offering a new economy step-fold that combines Radiant-Sequin with holiday colored tissues.

Tightening Tips

Here's important basic information on the maintenance of diesel powered machinery.

How much should a bolt, capscrew or nut be tightened? Around the maintenance shop there are many definitions of tightness. It's quite common to hear such terms as "finger tight," "snugged," "seated" or "so many pounds-feet tight".

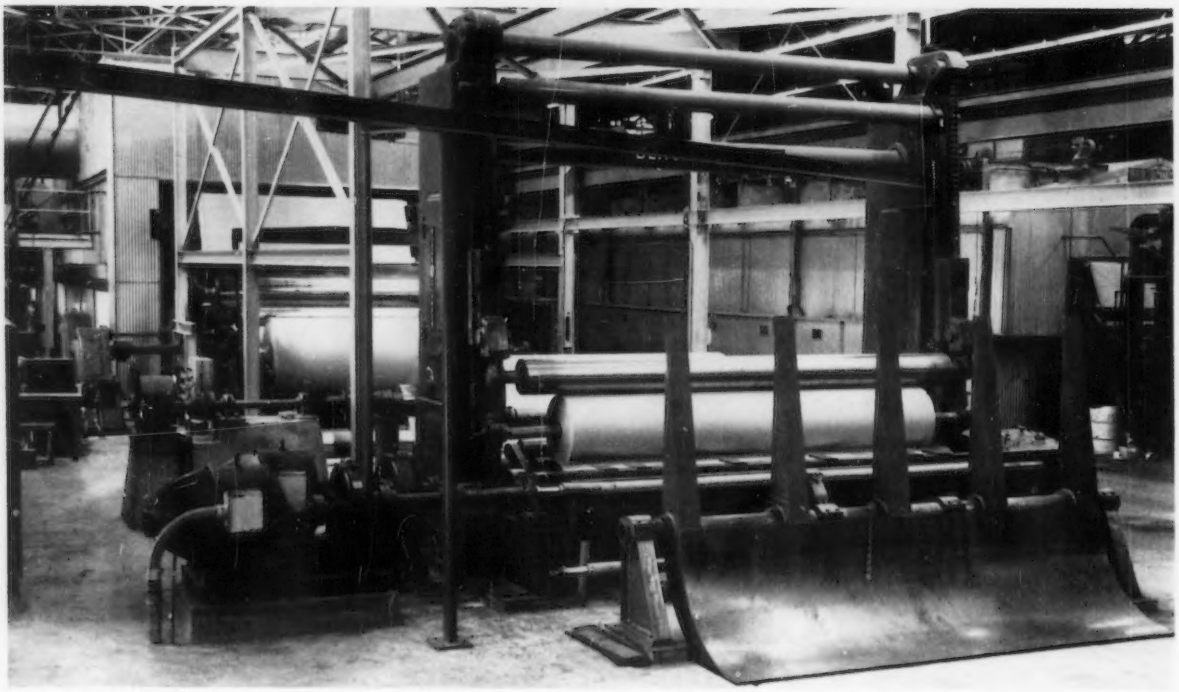
To tighten a bolt the nut must be turned down until the bolt begins to stretch. Any degree of stretching is due to the tension from the torque applied to the nut as it is moved up the bolt's thread. Air cleaner wing nuts, for example, are considered "finger tight" when enough torque has been applied by the hand to hold the cleaner tray securely in place. A drain plug is considered "snugged" when it is tightened just enough to hold it in place and keep oil from leaking past the gasket. A fitting is "seated" when it is turned into position although not necessarily placed in tension. Each of these terms is relative and amply describes non-critical degrees of tightness.

Naturally, it's impractical to torque all bolts to close tolerances. According to the Service Department of Caterpillar Tractor Co. there are, however, many instances where exact amounts of torque must be applied. Service Department personnel point out that hydraulic pumps and valves, for example, have small internal clearances. While it is desirable to have the parts of these units assembled tightly, too much tightening will reduce internal clearances to zero. Main and connecting rod bearings are round only when the correct torque is applied to the cap nuts. Too much torque will put these bearings out-of-round and cause failure of the parts when the engine is put back into service. Excessive tightening of cylinder head studs can distort the head, with a good probability of leakage, warping and cracking.

A torque wrench should be used to obtain a specific amount of torque when the amount of tightness is critical. If the torque is not measured it is easily possible to get an improper gasket crush from too little tightness, or cause distortion or bolt "set" from an excessive amount of torque. Additionally, the recommended tightening sequence should be followed.

The torque wrench will allow consistently accurate results every time. Like most tools, there is a correct way to use it. Torque should be brought up in increments by using a steady pull. Jerking the wrench will result in higher torques than are actually indicated on the wrench dial.

Reliable machine performance depends on correct adjustments. A torque wrench should be accurate and applied properly. The manufacturer's maintenance manual or dealer serviceman should be consulted for correct torque specifications.



Sonoco Dedicates Newest Paper Machine

A crowd of more than 300 gathered at the site of the ten million dollar expansion of Sonoco Products Co. at Hartsville, S. C., on June 20 to witness the formal dedication of the four phase project which is one of the largest industrial installations ever made in the state of South Carolina. The dedication was attended by company employees, officials, customers and members of the local and national press.

During the ceremony Sonoco's executive vice president C. W. Coker, told of the beginning of the company and concluded his remarks by dedicating the new paper machine to P. L. McCall. The new unit has been named "Mr. Mac" at the request of the men of the Corrugating Division who worked with the veteran paper maker in the erection of the new unit.

The first announcement of the expansion was made in December 1955 and construction has been underway since then on the new paper machine, the semichemical pulp mill, power plant and chemical recovery plant. Completion of these units was celebrated.

Honor guests at the ceremony were the customers for the output of the new unit . . . the F. J. Kress Box Co. of Pittsburgh, Pa.; the St. Regis Paper Co. and the Birmingham Paper Co.

The new paper machine, supplied by Black-Clawson, will produce .009 corrugating board using pulp from the semichemical plant. It trims a sheet 175-inches wide and is designed for a speed range of 500-1500 f.p.m.

The second phase of the expansion program of Sonoco is the pulp mill which produces semichemical hardwood pulp in a new type of continuous digester and will supply the pulp needs of both fourdrinier machines operated by the company.

To supply power for their greatly expanded activities in the paper making field, the company completed in February of this year a new power plant which supplements their existing steam-power plant. The new plant has a General Electric turbine generator with 12,500 kilowatts per hour capacity. This turbine is driven by steam power from a boiler plant which is unusual in its diversity of fuel. The boiler unit is designed to burn coal, oil or gas, with wood as a supplementary fuel. At the present time coal is the basic fuel and bark from Sonoco's pulpwood operations is used as a supplement.

The fourth phase of the project is the chemical recovery plant which produces acetic and formic acids from the semichemical mill waste liquor. The process is known as the Biggs process.

Paper Machine

The paper machine is a Black-Clawson 190-inch wide wire, fourdrinier for .009 semichemical board to trim 170-inches, designed for speed range of 500 to 1500 feet per minute. The installation includes an open headbox for 1000-feet per minute operation, so arranged that a cover may be installed for future pressurizing, and a Simplex cantilever fourdrinier. The press section is arranged with spacing to allow for future installation of vacuum pick-up. The dryer part contains thirty-four (34) 60-inch paper dryers, 186-inch face, and eight (8) 60-inch felt dryers, all constructed for 150 pound steam pressure. The dryers are arranged in two sections, the first section having 18 paper and 6 felt dryers, and the second section having 16 paper and 2 felt dryers. There is a breaker stack located after the first dryer section. A complete circulating oiling system designed to accommodate an additional 34 paper and felt dryers for future use, has been installed. Other

features of the dryer section include a Sheahan automatic paper carrier, and Johnson equalized pressure steam joints. Other equipment are: a two roll calender; Autoflyte pneumatic operated drum type uniform speed reel suitable for winding rolls up to 96-inch diameter (equivalent to two 72-inch rolls on winder). Black-Clawson winder for 4500 feet per minimum maximum, 72-inch maximum rewind capacity. The vacuum pumps were supplied by Nash. The drive is Black-Clawson differential type.

Turbine Generator

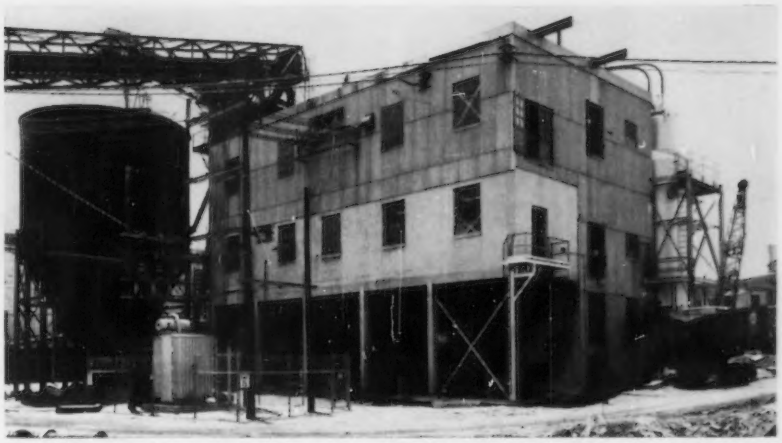
The turbine is a General Electric 12,500 kw. (maximum rated) double automatic extraction condensing 3600 r.p.m. steam turbine designed for initial steam conditions of 1250 p.s.i.g., 950 deg. F.T.T., and exhausting to one C. H. Wheeler 9500 sq. ft., cylindrical, single pass, steel sheel surface condenser at 2-inch Hg. A with automatic extraction at 375 p.s.i.g. and 150 p.s.i.g. and admission at 365 p.s.i.g. 640 deg. F.T.T. directly driving, one 15,625 kva, 0.80 P-F, 12,500 kw. 13,200 volts, 3-phase, 60-cycle synchronous air cooled generator with corner mounted coolers designed for 90 degree F. cooling water directly driving, one 60 kw. 250-volt room cooled, shunt wound exciter.

Boiler

The boiler is a Riley steam generating unit, Type RX, for outdoor service, fire by Riley traveling grate spread stoker, burning coal and wood. The boiler has a maximum continuous capacity of 275,000 pounds per hour at 1285 p.s.i.g. operating pressure and 950 degrees Fahrenheit total steam temperature at the super heater outlet, from feedwater at 420 degrees Fahrenheit when burning coal or coal and bark. All pressure parts are designed and constructed for a maximum pressure of 1400 pounds per square inch. Equipment includes a refuse fuel proportioner for distributing equal amounts of bark (from pulpwood) to the four pneumatic distributors. The Riley traveling grate is arranged for rear ash discharge. The dust collector is Aerotec Corp., designed for side inlet and top outlet.

Pulp Plant

New pulp mill equipment consists of a Sprout-Waldron continuous digester 8-feet 0-inches diameter by 39-feet 4-inches long, divided into two duplicate compartments each having a design capacity of 225-tons of b.d. pulp per 24 hours. Digester auxiliary equipment includes a Sprout-Waldron 24-inch diameter by 14-inch wide rotary valve chip feeder (with alternate screw feed system provided on one side), and discharger. Cooking pressure is 170 p.s.i.g. and the cooking time can be varied from 11 to 20 minutes. Other equipment includes: three Sprout-Waldron 36-2 single rotating disk refiners refiners; six Sprout-Waldron, V. D. Anderson 160 h.p. two-stage Fiberpresses fed by Rotaflow feeders; tile lined leaching towers; Foxboro control instrumentation and graphic panel. (The new pulp mill was described in detail in our February 17, 1957 issue.)



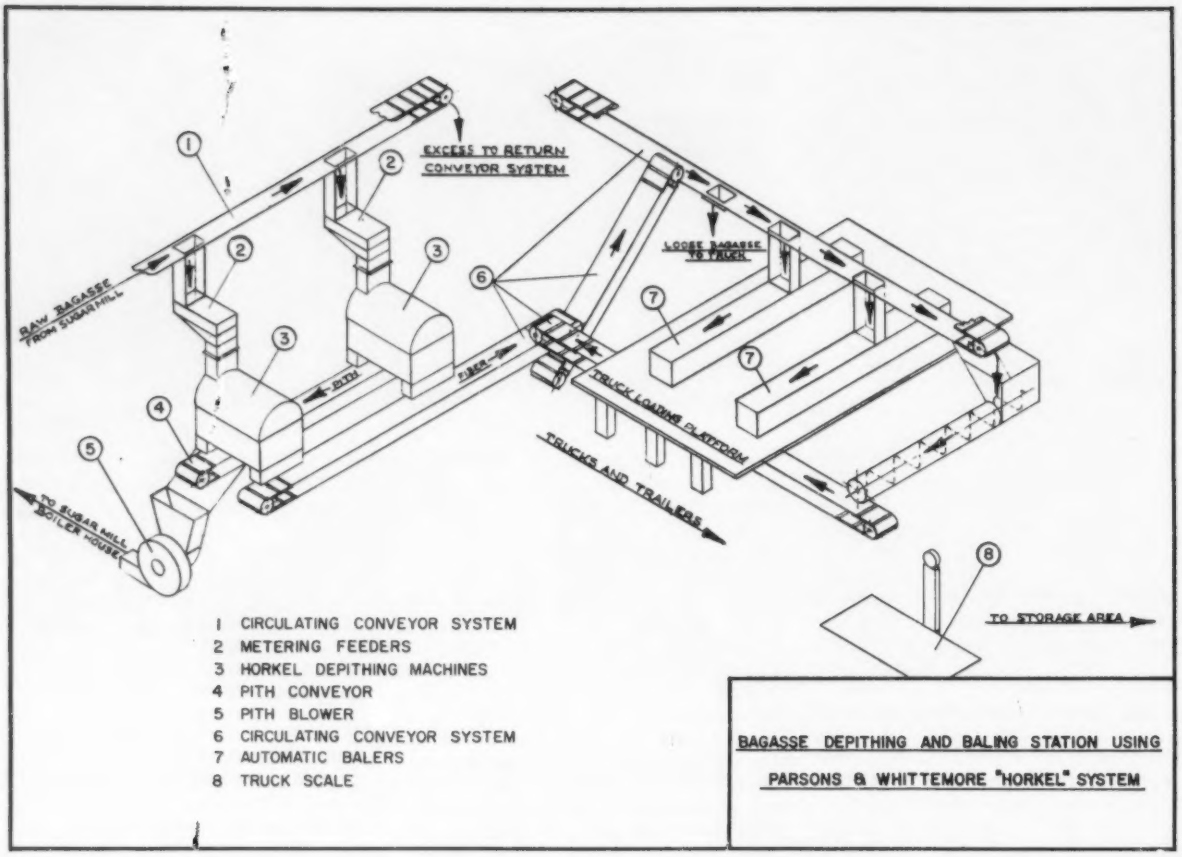
The pulp mill at Sonoco has been redesigned and greatly enlarged to handle the increased pulp demand due to the new 175-ton-per-day paper machine. The horizontal continuous digester is located in open area under front of building.

The wood yard equipment for handling purchased wood chips includes an Air-O-Flex truck dumper and a Rader Pneumatics pneumatic chip conveying system. A new 12-foot by 45-foot Carthage barking drum has also been installed.

Engineering

Engineering for the entire project was coordinated by the Sonoco Products Co. Engineering Department. Roderic O'Donohue was consulting engineer on the paper machine and pulp mill. Lockwood Green Engineers, Inc. were consultants on the power plant.

Another phase in Sonoco's expansion is the chemical plant. Using waste liquor from semichemical pulp operations, the plant recovers acetic and formic acids.



BAGASSE DEPITHING AND BALING STATION USING PARSONS & WHITTEMORE "HORKEL" SYSTEM

Cuban Mill Operates Improved System for Cleaning and Depithing Bagasse

New machine efficiently separates pith from fiber at the sugar mill.

The first commercial Horkel mechanical system for removing pith and dirt from sugar cane bagasse at a sugar mill has just completed a full season of operation at the Central Trinidad sugar mill in Cuba. The resulting depithed, clean bagasse fiber has been baled and stored for utilization by Papelera Pulpa-Cuba, S. A.—a new, 100 daily-ton bleached bagasse pulp and paper mill now nearing completion near Central Trinidad.

New Machine

Key to the new system is the Horkel depither, a modified swing hammer mill developed at Louisiana State University and first proven in pilot operations at the Audubon sugar factory. The machine has been licensed for manufacture by the Parsons & Whittemore-Lyddon organization in New York and London. The Parsons & Whittemore-Lyddon organization and affiliated companies also have exclusive sales rights of the machine and the Horkel Depithing System throughout the world.

The two Horkel machines installed at Central Trinidad handled a total of 250 tons of bagasse (bone dry basis) daily on a sustained around-the-clock schedule, operating throughout the sugar cane grinding season.

What the Horkel system offers is said to be an economically sound solution to a problem in bagasse utilization that has limited the value of this fiber for many years. It is widely recognized that most of the pith and dirt particles in the crushed sugar cane must be removed before the cane is pulped for papermaking if the pulp is to compete with other commercial pulps for cleanliness, brightness, and runability on a paper machine. However, when the cost of removing the pith and dirt is high, as it has invariably been in the past, it often prices bagasse pulp out of the market. The Horkel system, it is reported, not only removes the pith ef-

Raw Bagasse Feed | Fiber Product | Pith Fraction

DEPITHING RESULTS: Dramatic improvement in the condition of bagasse fiber for papermaking made by removal of the pith by the Horkel process.

fectively but also produces new cost savings that lower the expense of making pulp from depithed bagasse below that of producing pulp from the whole bagasse.

Savings Made

The Parsons & Whittemore-Horkel system accomplishes savings in several ways:

1—By removing a high proportion of the pith at the sugar mill, the sugar factory can retain this part of the undepithed bagasse as fuel. The cost of replacement fuel is reduced accordingly and the pulp mill is not charged with the undesirable pith which it cannot use anyhow.

2—Baling costs per ton of useable fiber are reduced by the absence of the pith and dirt.

3—Handling costs drop, because more fiber is handled per man-hour when the bales are formed of depithed bagasse.

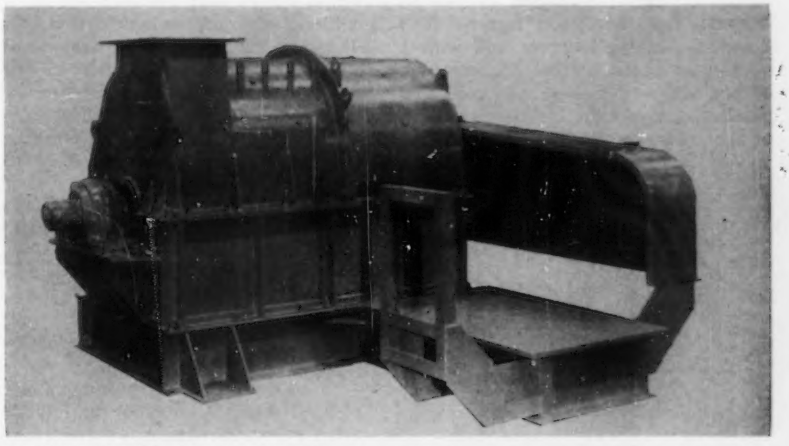
4—Freight charges go down if each ton of bagasse transported is more pure fiber and less pith and dirt.

5—A pulp mill digester charged with a ton of depithed bagasse will yield approximately 20 per cent more papermaking pulp than one charged with undepithed bagasse. Most of the pith in the whole bagasse merely dissolves out in the digester or forms undesirable products which must be removed later in the process.

6—Direct cost saving in the value of cooking and bleaching chemicals *not* consumed by the absent pith, is considerable. The pith consumes more chemical than the fiber, yet yields very little useable pulp.

7—Noticeable savings will also accrue through reduction in the rejections of paper made with pulp manufactured from Horkel depithed bagasse. And there will be fewer shut-downs and less maintenance on paper machines and stock preparation equipment because of pith and dirt problems.

8—The paper machine can be run



HORKEL DEPITHING MACHINE: A modified swing hammer mill for removing pith and dirt from sugar cane bagasse, the machine will handle 125 tons per day (dry basis). Product of Parsons & Whittemore Inc.

HORKEL AND INVENTOR: Dr. A. G. Keller, co-inventor of the depithing machine, recently inspected one of the two commercial units in the Central Trinidad sugar mill, Cuba.

faster, and production can be increased after removal of the slow draining, slow drying, troublesome pith.

Comparative tests have shown that substantial savings are possible through Horkel depithing at the sugar mill. These savings stand against a low cost for depithing bagasse by the Horkel system. Substantial additional savings in the integrated bagasse pulp and paper mill are anticipated.

How It Works

The Horkel depither was named for its two inventors, Dr. P. M. Horton and Dr. A. G. Keller, both professors of chemical engineering at Louisiana State University. Their machine is designed to operate on moist bagasse as it comes from the sugar factory. It is a modified swing hammer mill with a housing designed so that bagasse may be fed into the mill at one end. The crushed cane residue travels the length of the rotor across the top of the revolving hammers. Passage of the material is assisted by the special design of the hammers, giving a screw effect.

The depithed fiber passes out through a space in the housing at the end of the rotor. The pith, which has been knocked free by the hammers, falls to the bottom of the housing, which is a perforated metal plate. The action of the hammers is especially designed to keep the surface of the perforated plate free of material and to drive the separated pith through the openings.

The commercial Horkel machine is said to be extremely versatile and is designed to be used under almost any conditions of sugar cane milling operations. Where circumstances are favorable, it can be used not only for moist depithing but for complete wet depithing of the bagasse and subsequent recovery of a high proportion of the residual sugar in the bagasse thus increasing the profits to the sugar mill and providing superior quality pith-free bagasse fiber for pulp mill use.

NEW LITERATURE

A4 PNEUMATIC STEELSTRAPPER, FULLY POWERED. (Bulletin) Shows typical applications, pictorial operating instructions and specifications on this tool which provides power for every operation after the strap is inserted. **Acme Steel Co.,** 135th St. & Perry Ave., Chicago 27, Ill.

BAILEY RECEIVER RECORDER & CONTROLLER. (Specification E12-5) Contains details of newly developed plug-in components for the Bailey recorder. Also illustrates sealed, automatic, one-year inking system and many exclusive features. **Bailey Meter Co.,** 1050 Ivanhoe Rd., Cleveland 10, Ohio.

BAILEY ARMORTUBE CABLE. (Specification G91-9) Provides tables, dimensions, and installation information on this cable which is flexible, armored, multiple-tube transmission line for pneumatic and hydraulic metering and control systems. **Bailey Meter Co.,** 1050 Ivanhoe Rd., Cleveland 10, Ohio.

DEAN BROS. STANDARD CT PUMPS. (Circular 195) Gives features of these pumps which are designed to transfer heat to the liquid which passes through. Especially effective for liquids which congeal, solidify or crystallize with loss heat.

EASIEST WAY TO KEEP CONVERTING OPERATIONS GOING SMOOTHLY. (Folder) Illustrates 9 typical applications of Mount Hope Rolls in converting, with a brief explanation of what each accomplishes. **Mount Hope Machinery Co.,** 15th St., Taunton, Mass.

FACTORS TO CONSIDER. (Booklet) Covers how to select an automatic transfer switch, and applications of this equipment. **Automatic Switch Co.,** Florham Park, N. J.

GOULDS FIGURE 3604-¾". (Bulletin 624A4) Includes specifications, performance chart, dimensional drawings and construction data for this pump which is designed for heavy duty continuous operation. **Goulds Pumps, Inc.,** 44 Black Brook Rd., Seneca Falls, N. Y.

HAND TRUCKS—FACTS AND FACTORS. (Bulletin 5008-H) Outlines important factors to be considered in initiating a materials handling program. Drawings simplify the outline of a pallet system and recommended pallet design. **Automatic Transportation Co.,** 149 W. 87th St., Chicago 20, Ill.

HEAVY DUTY HAMMER MILL. Bulletin 1-C) Illustrates the rugged construction of these heavy duty mills and shows five different installation arrangements. A schematic drawing explains pneumatic collecting systems which are engineered for the job at hand. **Sprout, Waldron & Co., Inc.,** 130 Logan St., Muncy, Pa.

HUYCK FELT BULLETIN. (Volume 11 No. 12) Contains an article on Mechanical Methods of Felt Cleaning by John C. Spicer, Field Service Engineer. **Huyck Felt Co., Div. F. C. Huyck & Sons,** Rensselaer, N. Y.

OMEGA CONTINUOUS LOSS-IN-WEIGHT ENGINEERED FEEDING SYSTEMS. (Bulletin 32-R2) Provides explanatory text, dimensional drawings and tables, photographs, schematic drawings and performance charts on these feeding systems for all flowable liquids or solids. **Omega Machine Co.,** 345 Harris Ave., Providence 1, R. I.

MIRRO-KEEN FINISH PAPER AND VENEER KNIVES. (Brochure) Describes their new finish being used on all bevel edge knives for paper and veneer, cutting and trimming operations. **Simonds Worden White Co.,** 1101 Negley Pl., Dayton, Ohio.

ROSS C-100 EXCHANGERS. (Bulletin 302.5K1) Introduces a new, highly flexible, fully standardized line of heat exchangers for chemical process applications. **American-Standard, Ross Heat Exchanger Div.,** Box 2081, Buffalo 5, N. Y.

PULPWOOD STATISTICAL REVIEW. (35p Book) Brings together pulpwood statistics for both the current and past years that have dealt with its consumption, receipts and inventories. Most of the detailed information for 1957 has never been available before. Price $5.00 per copy. **American Pulpwood Assn.,** 220 E. 42nd St., New York 17, N. Y.

ROCKWELL PLANETARY GEAR OPERATOR. (Bulletin V-610) Contains illustrated sales copy on this operator which can be installed by one man and is lightweight and compact. Also includes an operator selection guide and installation directions. **Rockwell Mfg. Co., Meter & Valve Div.,** 400 N. Lexington Ave., Pittsburgh 8, Pa.

STEAM TURBINE GENERATING UNITS. (Bulletin 03B7654A) Presents design and construction features of these units which are rated 2000 through 16,500 kw. Also carries cross-section diagrams of each of the four basic types. **Allis-Chalmers Mfg. Co.,** Milwaukee 1, Wis.

Paper . . . The Fifth Wonder

Written in simple language which the layman can understand, this 192-page text by John H. Ainsworth treats in digest form the various aspects of pulp and paper manufacture. Twelve well-illustrated chapters briefly review the strides paper has made historically and discuss in non-technical terms wood properties, mechanical, kraft, soda and sulphite pulping, bleaching, stock preparation, coloring and sizing, paper testing, and converting.

Newcomers to the paper industry, or people outside the field will find Mr. Ainsworth's book most informative.

Copies are available in book form, or unbound as a series of booklets, priced at $4.00 and $1.80 respectively—from Lockwood Trade Journal Co., Inc., 49 West 45th Street, New York 36, N. Y.

Behavior of the Sheet at Open Draw Between Couch and First Press

A discussion of factors affecting tension in the sheet leaving the couch.

E. J. Cole

One of the vital elements of successful paper machine operation is the control of the draw between the couch and the first press. As far as the present author has been able to trace, this has been dealt with in the literature of papermaking only once *(1)* and then in an unpublished work of which it is exceedingly difficult to obtain a copy. It seems therefore worth while to examine this question in detail.

Figure 1 is a definition sketch showing the angles between paper, couch and the radius of the couch. The forces holding the paper on the couch are those of adhesion and surface tension. The tension in the paper *S* acts in the direction of motion but only the radial component of tension can be considered as effective in detaching the paper from the couch, this effective component is S cos Φ, where Φ is the angle between the paper and the tangent, called by Mardon *(1)* "the angle of take off."

Figure 2 is a graph which plots tension in the sheet against the angle between the paper and tangent. This shows how the angle affects the tension in the sheet necessary to detach it. The graph indicates that the tension is a minimum at 90 degrees but varies little between 75 and 105 degrees.

Changing the Angle

The situation that exists if change of angle is considered, has been illustrated in figure 3. The path of the paper marked **1** is the normal path, the path marked **2** is that for a take off at 90 degrees, with the same machine geography. This is not practicable for actual machine operation since if the adhesion were to increase the paper would have no alternative but to follow the couch and break. Similarly if a change in the stock occurred affecting the rheology such that the tension imposed in the wet paper for a given extension decreases, then the tension is no longer sufficient to detach the paper which would therefore break.

In the first case, however, such an adhesion increase would merely result in the paper running down the couch and increasing the angle of take off, so increasing the radial component of tension until an equilibrium is reached and the paper is again detached assuming that same angle of take off, not greater than 90 degrees will exert the necessary radial component of tension. Similarly if the rheology changes in the manner previously postulated, an equilibrium point will result and the paper will be detached.

Changing the Path

Path **3** shows how the paper might

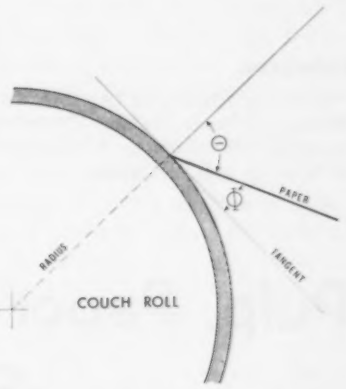


FIGURE 1—Definition of the angles between the paper, couch and radius of the couch.

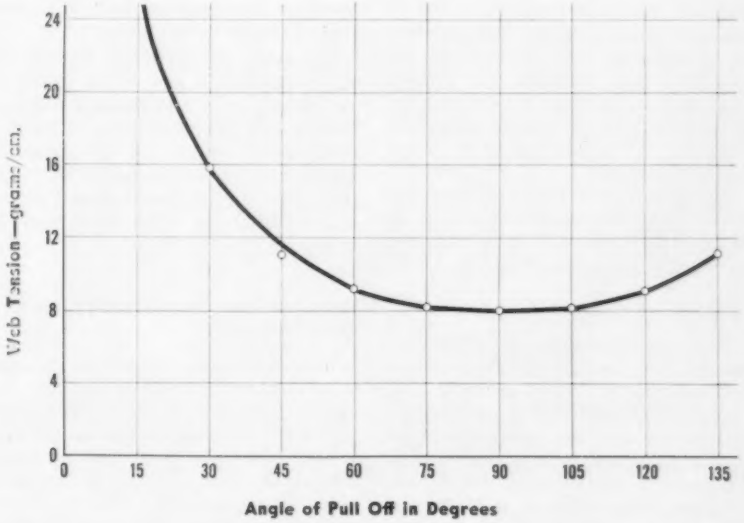


FIGURE 2—Dependence of web tension on angle of pull off. Tension is expressed as total tension divided by sheet width in centimeters. Angle of pull off is the angle between the paper and the tangent.

be detached at an angle of more than 90 degrees (actually 115 degrees). Consideration of this situation in the above manner recalls that this would be impracticable since, though of course an instantaneous equilibrium could exist, the condition would be unstable since either of the two changes postulated would result in the paper moving down the couch which would instantly reduce the radial component of tension still further and the paper would break.

Path 4 shows the paper taking off from the bottom of the couch at an angle of 75 degrees where operation should be practicable. Such a take off should allow a sufficient movement of the paper to obtain an equilibrium but would necessitate a lower tension in the web than the small angles usually used.

Reference

(1) Jasper Mardon in "An Instructors Manual of Paper Machine Operation" an unpublished work by R. G. Arklie, A. McInnes and J. Mardon.

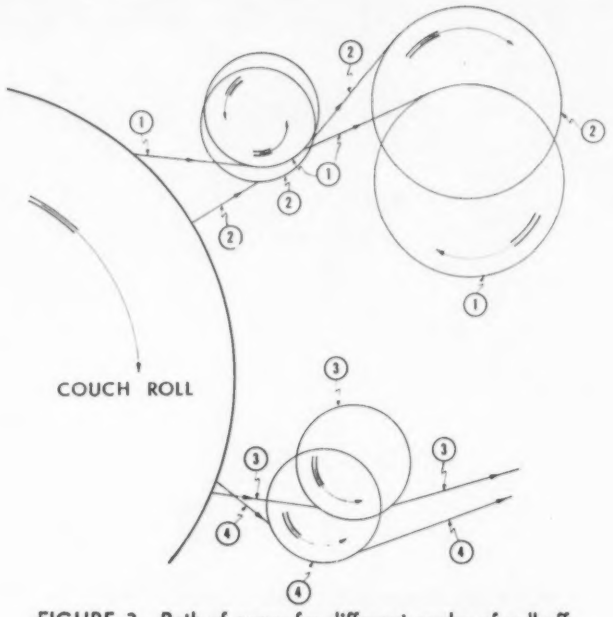


FIGURE 3—Path of paper for different angles of pull off.

Pulp, Paper and Board — Supply-Demand A Summary

This supplemental study to the basic report "Pulp, Paper and Board-Supply-Demand" has been prepared at the request of the chairman, Subcommittee on Commerce and Finance of the Committee on Interstate and Foreign Commerce, House of Representatives, in accordance with a letter dated October 17, 1957, addressed to the Secretary of Commerce.

The basic report "Pulp, Paper and Board-Supply-Demand" was printed as House Report No. 573, 85th Congress, 1st Session, and dated June 17, 1957.

Purpose of Study

The Subcommittee on Commerce and Finance requested the Department of Commerce for a revision of the basic report that would include comparable information for the year 1957 and project the situation as it may appear from such additional data.

To meet this objective, the 1955 and 1956 data appearing in the basic report have been revised, largely in accordance with the latest corrected census figures on production, imports, and exports. Further, the preliminary 1957 data on production, imports, and exports, as well as the calculations on apparent consumption for 1957, have been included in this study.

To meet the particular interests of the committee, a new world survey of newsprint supply and demand was conducted with the cooperation of the foreign service offices in 63 countries. Revised data were prepared for 1956 through 1959 and supplemental figures and analyses for 1960 have been incorporated in this study.

Assumptions, Terminology, and Qualifications

The projections of domestic demand, exports, and imports, which are included in many statistical tables appearing in this study, are based on the definitions and explanations relating to assumptions, terminology, and qualifications that appear in the basic report "Pulp, Paper and Board-Supply-Demand" (H.R. No. 573). *It is important to bear in mind that the future domestic demand figures were derived from economic correlation projections and do not represent precise forecasts for any particular year.*

Capacity

U. S. industry capacity for wood pulp, paper and board through 1959 appears in the basic report. Currently the American Paper and Pulp Assn. and the National Paperboard Assn. are conducting a new survey of domestic mill capacity which may result in some revision of the capacity figures, especially for 1958 and 1959. The results of these new capacity studies are expected to be available for reference later in 1958.

The U. S. Pulp Producers Assn. released on April 23, 1958, the results of their recent capacity survey. Revised data for 1957, 1958, and 1959 are included in this report.

Highlights

• **Paper and board production** in the United States totaled 30.7 million tons in 1957, a decline of about 700,000 tons or 2.3 per cent below 1956.

• **Imports of paper and board** into this country in 1957, principally newsprint, totaled 5.4 million tons, a drop of 375,000 tons or 6.5 per cent.

• **Exports of paper and board** by the United States in 1957 amounted to 751,000 tons, a gain of about 80,000 tons or 12 per cent over 1956.

• **Apparent consumption** of paper and board in this country totaled 35.3 million tons in 1957, a decline of 1.0 million tons or 2.8 per cent under 1956.

• **Production of newsprint** in the United States reached an all-time high of 1.8 million tons in 1957, surpassing the previous record of nearly 1.7 million tons of 1926 and accounting for 25 per cent of U. S. supplies as compared to 18 per cent in 1951. Total 1957 newsprint imports amounted to 5.2 million tons, a decline of nearly 350,000 tons from 1956, while U. S. exports rose to 174,000 tons, up to 20,000 tons from 1956.

• **Newsprint consumption** here in 1957 amounted to approximately 6.8 million tons, a decline of 29,000 tons or 0.4 per cent less than 1956 consumption, according to Department of Commerce statistics. Several factors contributed to this modest decline in 1957. The long-term outlook is for resumption of the upward trend in newsprint consumption.

• **World newsprint production** potential exceeded demand in 1957 by an estimated 683,000 tons. By 1960 the surplus should be about 1.7 million tons, as demand then is estimated at 15.1 million tons and potential production at 16.8 million tons, a rise of 3.2 million tons over 1956 production.

• **Consumption of printing and fine** papers in 1957 appeared to be somewhat over 5.5 million tons, a decline of 5.5 per cent from 1956. The drop is believed to be in large part the result of inventory adjustments. Principal users of these grades are the printing and publishing industries, whose level of activity in 1957 indicates that their actual consumption may have equalled or slightly exceeded 1956 usage.

• **Production of wood pulp** here in 1957 totaled 21.8 million tons, a decrease of about 325,000 tons or 1.5 per cent below 1956.

• **Imports of wood pulp** in 1957 by the United States amounted to 2.1 million tons, largely from Canada. Imports declined 230,000 tons or about 10 per cent below 1956.

• **Exports of wood pulp** from the United States totaled 622,000 tons in 1957, a gain of nearly 100,000 tons or 18.5 per cent over 1956.

ABOUT ONE-THIRD OF THE PAPER AND PAPER-BOARD USED IN THE UNITED STATES IS RETURNED TO THE PAPER MILL IN THE FORM OF WASTE PAPER AND USED AGAIN—
JOES JUNK YARD
Flyer

• **Total consumption** of wood pulp here in 1957 appeared to be 23.3 million tons, a decrease of about 650,000 tons or 2.7 per cent below 1956.

• **Pulpwood consumption** by U. S. pulp mills in 1957 totaled 35.7 million cords, a decline of 87,000 cords or 0.2 per cent under 1956.

• **Utilization of hardwoods,** largely second growth, for pulpwood has shown a marked upward trend, increasing from 2.5 million cords in 1947 to 6.3 million cords in 1957, a rise of 2½ times the 1947 volume during the past decade.

• **Waste paper consumption** by U. S. paper and board mills totaled 8.4 million tons in 1957, a drop of 390,000 tons or 4.4 per cent below 1956.

Authors

This supplemental report was prepared under the technical direction of W. LeRoy Neubrech, assistant director for Pulp, Paper and Paperboard, Forest Products Div., Business and Defense Services Administration. He was assisted by Wallace H. Pederson, program executive for paper, who gave special attention to the world newsprint analyses. John R. Mutzabaugh, program executive for converted products, rendered valuable support in statistical coordination.

Horace Hart, director, Printing and Publishing Industries Div., together with members of his staff — namely, Miss Flora Phillips, industry analyst, and Miss Anne Jacks, program executive for books and magazines — prepared the material in this study concerning the domestic demand aspects for newsprint and other printing papers.

How to Choose the Right Valve for Your Mill Operations

There are now so many valve types and modifications available that selections of the best one for a particular job requires some basic knowledge of them.

J. E. Bradbury
Manager of Chemical Sales
Crane Co.

Progress in valve design has made available a great variety of valve types. Each of them has a special qualification for handling the ever-growing list of fluids for mill processing and plant services.

But choosing the right valve to provide dependable and economical performance in each particular need is not an easy job. It requires some knowledge of valve types and designs. Then it becomes a case of carefully matching up the valve's service characteristics with the fluid service requirements. This, in turn, calls for knowledge of every detail of the job to be done—working pressure, temperature, fluid, volume of flow, corrosive elements, valve operating cycle, etc. You will also want to consider the original valve cost, installation cost and, of course, the comparative cost of maintenance.

Let us start with the three principal valve types and discuss the basic design characteristics and uses of each. Here they are:

Gate Valve

Gets its name from the gate-like disk that operates at right angle to the path of flow. As a general rule, gate valves should be used as stop valves—to turn on or shut off flow.

Globe Valve

So named for its globular body. Flow through a globe valve changes course, causing increased resistance to flow and considerable pressure drop. Seating arrangement makes globe valves most suitable for regulating or throttling flow.

Check Valve

Simplest of three types. Used to stop backflow in piping. Unlike gate and globe valves, they operate automatically.

Now let us discuss the use of the three basic types in more detail:

Basic Gate Valve Design

Gate valves are inherently suited for

1—Gate Valve

2—Globe Valve

3—Check Valve

wide-open service. Flow moves in a straight line, and practically without resistance when disk is fully raised.

Seating is perpendicular or at right angle to the line of flow—meets it head on. That's one reason why gate valves are impractical for throttling service and for too frequent operation.

For instance, a 6-inch gate valve holding fluid at 300 p.s.i., puts a load of over four tons on one side of the disk, if there is only atmospheric pressure on the other. While seated tight, there's no wear or undue strain on disk or seats. But each time the valve is "cracked open," there's a threat of wire drawing and erosion of seating surfaces by the high-velocity flow.

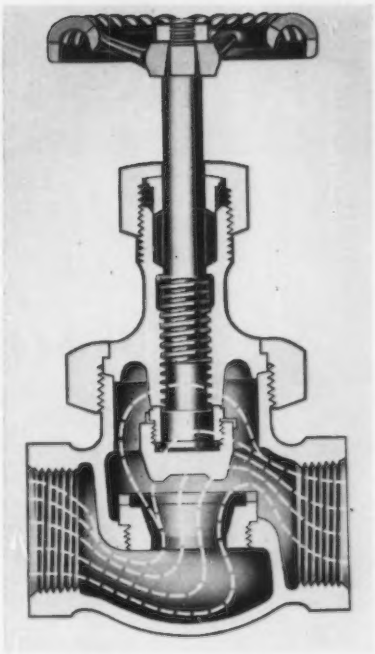
A gate valve usually requires more turns, more work, to open it fully. Also, unlike many globe valves, the volume of flow through the valve is not in direct relation to number of turns of handwheel.

Since most gate valves used have wedge disk with matching tapered seats, refacing or repairing of the seating surfaces is not a simple operation.

Gate Valves Are Not Designed for Throttling. In a slightly opened position high-velocity flow will cause wire drawing and erosion of seating surfaces in gate valves. Repeated movement of disk near point of closure under high-pressure flow may gall or score seating surfaces on downstream side. Slightly opened disk in turbulent flow may cause troublesome vibration and chattering. Gate valves, while not designed for throttling or too frequent operation, are generally ideal for services requiring full flow or no flow.

Basic Globe Valve Design

Unlike the perpendicular seating in gate valves, globe valve seating is parallel to the line of flow. All contact between seat and disk ends when flow begins. There are advantages for more efficient throttling of flow, with minimum wire drawing and seat erosion.



4—Globe Valve Cross Section

The directly proportionate relation of size of seat opening to number of turns of handwheel, a distinctive feature of plug-type globe valves, permits close flow regulation. An operator can gage the rate of flow by the number of turns of the wheel.

Shorter disk travel—with fewer turns required to operate globe valves—saves considerable time and work—also wear on valve parts.

Whatever wear occurs as the result of frequent or severe operation presents less of a maintenance problem than in gate valves. Seat and disk in most globe valves can be repaired without removing the valve from the pipe line.

Changing direction of flow means greater resistance to flow—and sometimes, objectionable pressure drop (see figure 4).

CONCLUSION: Globe valves, while not recommended where resistance to flow and pressure drop would be objectionable, are generally ideal for throttling, and preferable for frequent operation.

Check Valves in Two Basic Types

The Swing Check

Swing checks work automatically. But whether used in a horizontal line or vertical line for upward flow, they will not function properly unless installed with pressure *under* the disk.

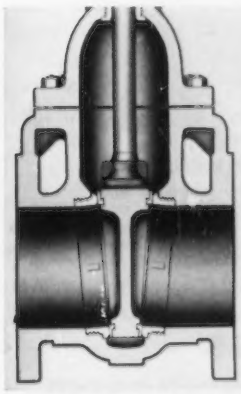
Flow through swing checks is in a straight line and without restriction at the seat, similar to a gate valve. This similarity in effect on flow is the reason for generally using swing checks in lines in combination with gate valves. For proper installation, most swing check valves are marked with an arrow, indicating direction of flow. Moving through the line, pressure automatically swings the disk open to full flow as in a gate valve. Should flow reverse, the reversed pressure and the disk's weight close the disk against the seat, and backflow is stopped.

The Lift Check

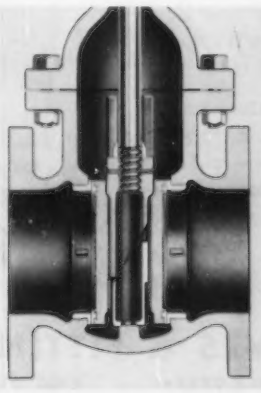
Lift checks also operate automatically by line pressure. They should be installed with pressure under the disk.

Like the globe valve with its indirect line of flow, the lift check is restricting to flow. For this reason, it is generally used as a companion to globe

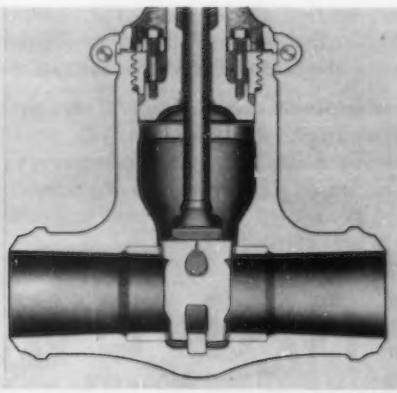
(Continued on page 38)



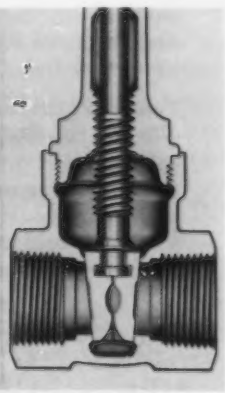
5—Solid Wedge Disk Gate Valve



6—Double Disk Gate Valve



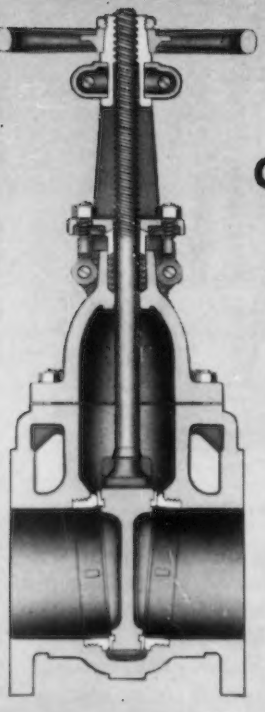
7—Flexible Wedge Disk Gate Valve



8—Split Wedge Disk Gate Valve

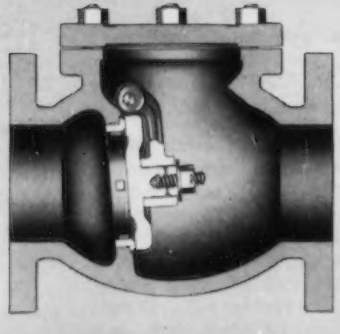
NEW CRANE VALVES FOR PROCESS INDUSTRIES

3% NICKEL ALLOY CAST IRON



Gates and Swing Checks

18-8 SMo (Type 316) Alloy Trimmed



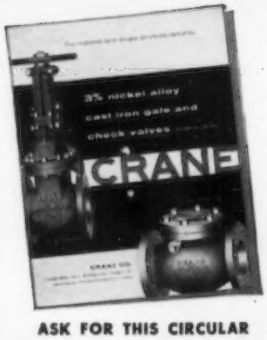
11 SIZES — 2 TO 18 INCHES

Better Corrosion Resistance . . . Longer Life . . . on More Fluids

This metal—Crane 3% nickel alloy iron—was developed especially to extend the usefulness and economy of cast iron valves in the process industries.

At but slightly higher cost, Crane 3% nickel iron valves provide substantially better resistance to corrosion than ordinary cast iron, and they have notably higher physical properties. Efficiency is stepped up further with Crane 18-8 SMo (Type 316) stainless steel trim.

Typical Recommended Applications: You will save with these valves —in the petroleum industry, for example—on oils containing traces of mineral acids; in wood-treating processes—on creosote vapors and oils; in pulp and paper mills—on alkaline liquors of various kinds. In general, they should be considered where all-iron or brass-trimmed iron valves are subject to seat corrosion.



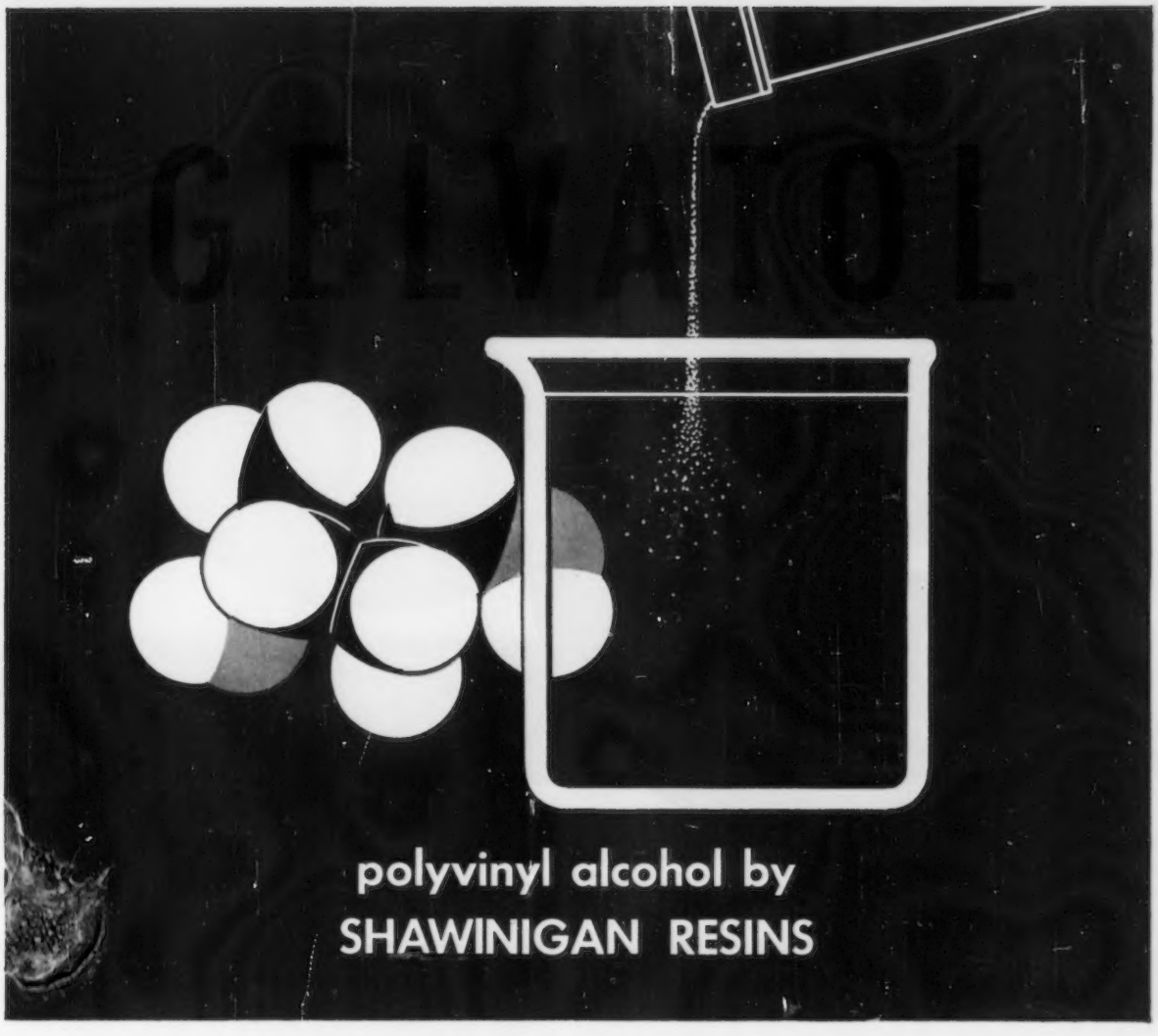
ASK FOR THIS CIRCULAR

Complete technical and specification data on these valves are given in Circular AD-2313. Ask your Crane Representative for a copy, or write to address below.

CRANE VALVES & FITTINGS

PIPE • PLUMBING • KITCHENS • HEATING • AIR CONDITIONING

Since 1855—Crane Co., General Offices: Chicago 5, Ill.—Branches and Wholesalers Serving All Areas



has high dissolving speed

The unique particle structure of GELVATOL, polyvinyl alcohol, ensures fast wetting out of the resin and consequent faster preparation of solutions. With completely hydrolyzed grades, more time is saved by starting with warm water. The unique particle structure retards softening and lumping while speeding dispersion and ultimate solution.

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CATIONIC STRENGTH

improves paper quality

A unique starch derivative develops strength in papermaking through its cationic properties. It's Cato, National's cationic wet end additive.

This extraordinary strength from Cato leads to unusual improvements. At one mill, with higher mullen and faster machine speeds. At another, with increased strength for tissue and a less costly pulp mixture. At another, with increased pick, fold and mullen and lower starch costs. And more, as can be seen from the Mill Trial Results at right.

Cato is chemically modified with cationic groups so that its molecule carries a positive charge. These cationic groups are attracted by relatively anionic cellulose fibers. *Stronger fiber bonding results!*

Cato increases retention of pigments, binders and other additives in addition to increasing strength. This is significant—as you can see in the Mill Trial on Offset Paper. Here, increased retention of clay and titanium filler indicates a 30% reduction in overall consumption of these materials.

Cato is highly effective with sulfite, soda and groundwood pulp as well as kraft and reclaimed stocks. It is virtually 100% retained in the sheet. Additions are small because of its effectiveness. We'd be glad to help you run trials. Just contact your nearest National office.

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STARCH PRODUCTS INC.

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ACTUAL MILL TRIAL RESULTS

OFFSET PAPER

Procedure: Cato added at 0.5% on the fiber, replacing 3% beater starch. Run made on 70 pound uncoated offset grade which had a size press application of starch.

Mill Trial Results:

	3% Beater Starch	0.5% Cato
Basis Weight	70	70
% Ash	9.5	10.5
Ave. Mullen	35	42
Ave. Schopper Double Folds	35	44
Wax Picks	13/18+	14/18+
Opacity	94	95

Advantages: The efficiency of low concentrations of Cato lowers starch costs while increasing pick, fold and mullen. Too, Cato can reduce costs with hig[illegible]r pigment retention, as shown by data taken from another mill tr[illegible] on offset paper. These figures were taken from a continuous run where Cato was introduced first, then replaced with the regular starch additive, and re-introduced into the system with 30% less titanium dioxide and 30% less clay added to the stock. In this, and other similar runs, better filler distribution and less two-sidedness have been noted.

Mill Trial Results:

	Concentration on Fiber	% Ash
Cato	0.5%	15-16%
Regular Starch Additive	2.0%	8-10%
Cato (with 30% less clay and titanium dioxide)	0.5%	14-15%

LETTERPRESS COATED STOCK

Procedure: Cato added at 0.5% on the fiber. Run made on a 50 pound machine coated letterpress sheet containing 13-15 pounds of coating per ream.

Mill Trial Results:

	REGULAR ADDITIVE		0.5% CATO	
	Lower Limit	Upper Limit	Lower Limit	Upper Limit
Basis Weight	47#	50#	49#	52#
Opacity	82	83	82.5	84.2
Mullen	16	20	20	23
Wax Pick	W6/5F	W7/7F	W7/7F	W9/8F
Total Ash	24%	30%	27.6%	34.6%
Base Stock Ash	7%	9%	9.2%	10.2%

Note the increase in ash content with Cato and higher strength levels at relatively higher ash contents. In an attempt to increase ash without loss in strength, more clay was added to the beaters and Cato was added at 0.7% on the base stock. Result:

	0.7% CATO	
	Lower Limit	Upper Limit
Basis Weight	48#	50.5#
Opacity	83.5	84.8
Mullen	16	19
Pick	W7/7F	W10/8F
Total Ash	33.8%	35.4%
Base Stock Ash	9.5%	14.9%

Advantages: Cato upgrades the base sheet so that both body stock pick strength and final surface pick after coating are improved. Economies are indicated by substantial increases in pigment retention.

as it lowers paper costs

KRAFT LINER

Procedure: Cato added at 0.5% on the fiber to the headbox. Run made on 47 pound test liner.

Mill Trial Results:

	Machine Speed	Ave. Mullen
Before Cato	980	109
With Cato (0.5%)	1060	120+

In another run on 42 lb. liner, Cato was added at 0.25% on the fiber to the headbox. At a constant machine speed of 1200 f.p.m., the mullen increased from 97 to 112.

Advantages: Stock with Cato is stronger and drains more freely on the wire. This permits faster machine speeds and greater production. On bag paper, tear increases have been noted when Cato is used to maintain tensile and mullen with less refining

SANITARY BOARD

Procedure: Cato added at 0.5% on the fiber. Run made on 60 pound bleached kraft container stock.

Mill Trial Results:

	Ave. Mullen	Bondage Range	Vanceometer @ 60 sec.	Pick
Cato (0.5% conc)	152	15-18	96	20/18
0.5% Natural Gum Type additive	147	13-17	93	18/18

Advantages: Cato aids in preparing base stock for size press or calendar stack applications at a more economical cost. In this case—a cylinder machine operation—interply bond and mullen were primary considerations.

TISSUE

Procedure: Cato added at 1% on the fiber. Run made on 10 pound industrial grade tissue.

Mill Trial Results:

	Ave. Mullen	Tensile MD	Tensile CD	Absorbency	Softness
Before Cato	7.8	505	212	17	27-18
With Cato (1%)	10.0	605	289	17	30-20
After Cato	7.8	516	255	17	27-21

Subsequent trials at this mill established an optimum concentration of 0.8% on the weight of fiber after an increase in groundwood content of the sheet.

Advantages: Cato's ability to strengthen without sacrificing absorbency or softness makes pulp changes possible that provide substantial cost savings. Cato is now being used on premium grades of toilet and facial tissues in concentrations of 0.25-0.5% on the fiber weight.

RESIN TREATED PAPER

Effect of Cato as a mordant for anionic resins added to the beater is illustrated by the following data taken from an evaluation where a waste groundwood furnish was employed.

Procedure: Cato added at 2% on the fiber to the headbox. GRS rubber latex added at 10% on the fiber to the beater. Alum added to stock after dispersion of resin.

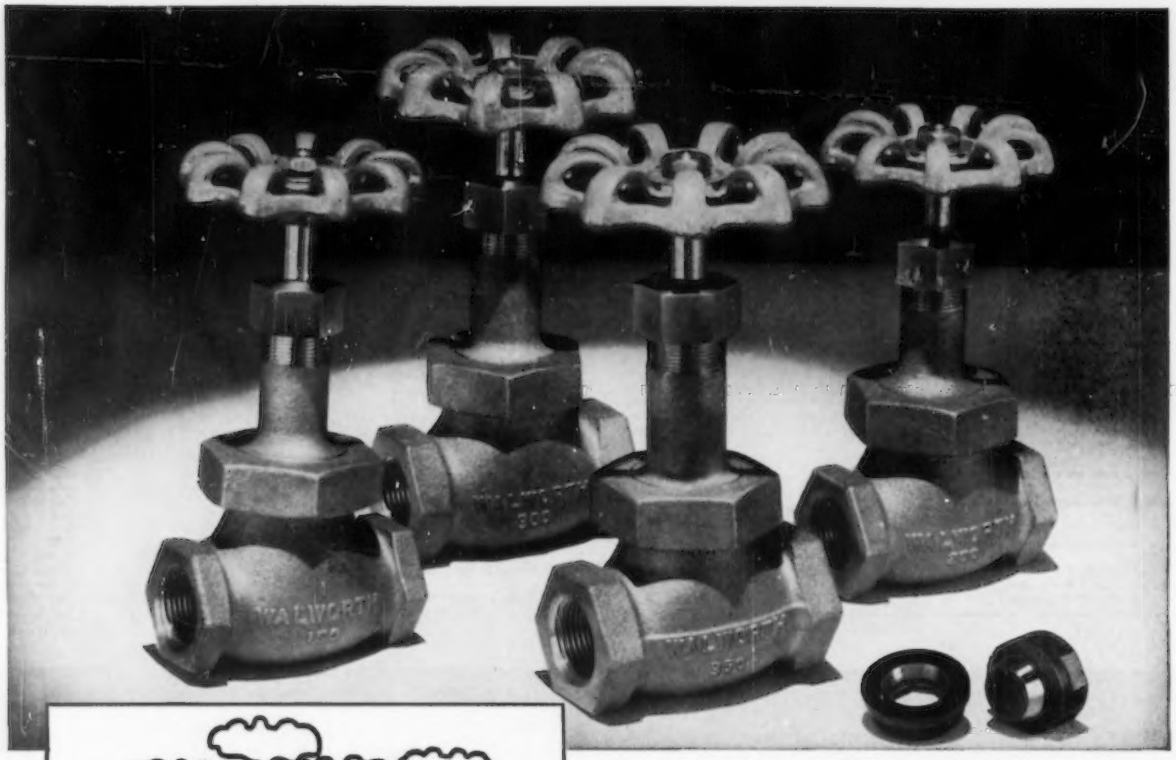
Mill Trial Results:

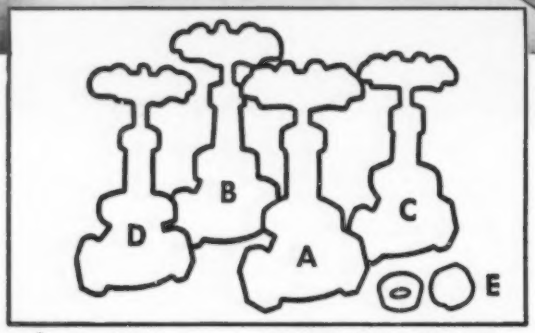
Additive	% Alum	% Retention of Latex	% Wet Strength
10% GRS rubber	5	60-70	21
10% GRS rubber, 2% Cato	5	90-100	32
10% GRS rubber, 2% Cato	2	90-95	34

Advantages: Savings can be effected by using Cato to retain a higher percentage of resin in the sheet. Wet and dry strength factors are improved by greater resin retention, improved deposition of resin on the fiber, and by virtue of reduced alum addition.

CATO

CATIONIC WET END ADDITIVE





A — No. 225P.....350 WSP 550F, 1000 WOG
B — No. 260P.....300 WSP 550F, 600 WOG
C — No. 245P.....200 WSP 550F, 400 WOG
D — No. 237P.....150 WSP 500F, 300 WOG
E — "500 Brinell" Stainless Steel Plug Type Seat and Disc

Walworth offers four lines of Bronze Globe Valves with stainless steel, plug-type seats and discs. Advantages of these valves include:

• **Stainless Steel Plug-Type Seats and Discs,** heat-treated to a minimum of 500 Brinell hardness reduces wire-drawing to a minimum. Seats and Discs are machined and fitted simultaneously, assuring perfect mating.

• **Deep Stuffing Boxes with Glands** are fitted with reinforced, molded packing. Valves can be repacked under pressure when fully opened.

For Longer Bronze Valve Life . . .

"500 BRINELL" PLUG-TYPE STAINLESS STEEL SEATS AND DISCS

150 lb. 200 lb. 300 lb. 350 lb.

• **Oversize Stems,** made of high tensile strength silicon-bronze, assure long life.

• **Rugged Body Hexes,** are flat on top; do not interfere with wrench gripping body-to-bonnet union ring connection.

• **Bodies,** made of Composition M bronze (ASTM B61), have ample wall thickness to provide high safety factor.

• **Patented Handwheels** are air-cooled and designed with a "finger-fit grip." Makes turning easy even when wearing greasy gloves.

• **Identification Plates** secured by lock-washer under stem nut, show Figure Number of valves and make re-ordering sure and easy.

FOR COMPLETE INFORMATION, SEE YOUR WALWORTH DISTRIBUTOR OR WRITE FOR ILLUSTRATED CIRCULAR

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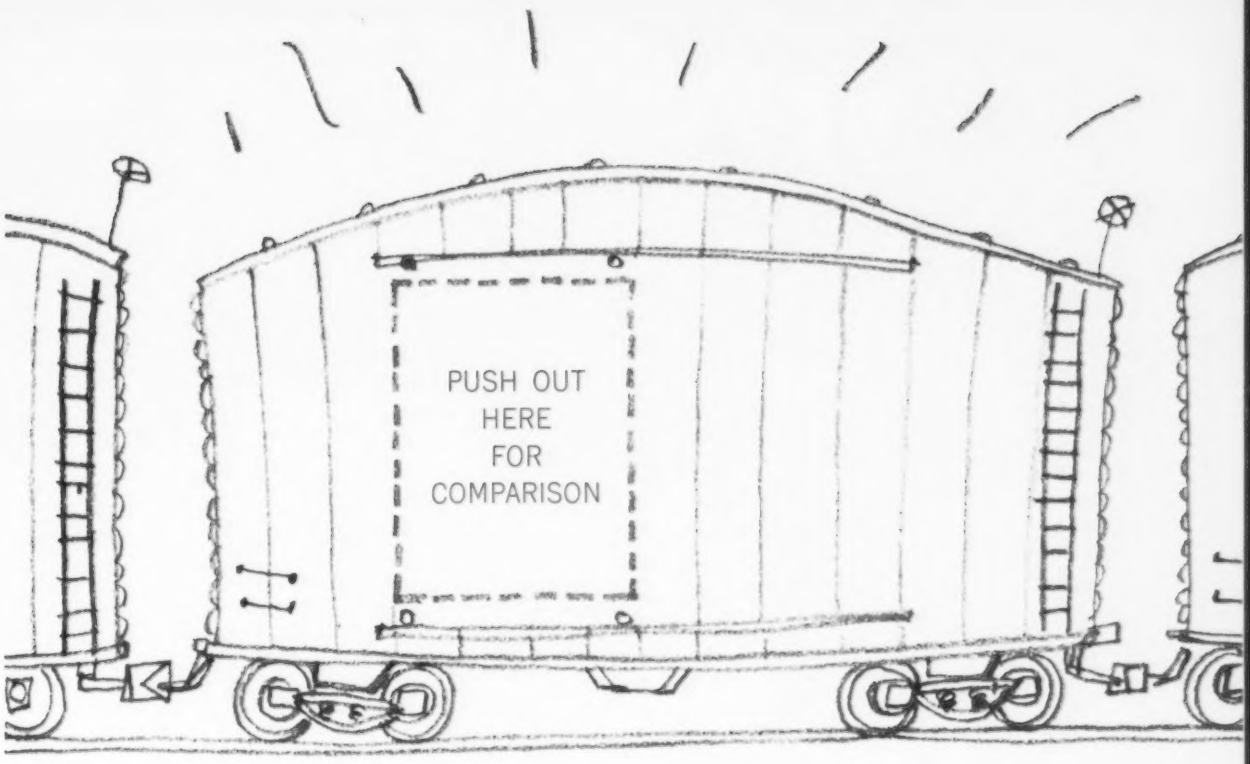

CARLOADS OF SALES OPPORTUNITY IN **CALCOFLUOR-TREATED** PAPER!

(TEAR HERE FOR READY REFERENCE)

The brilliant whiteness imparted by CALCOFLUOR led Pan American World Airways to order 12 CARLOADS of treated stock for its 1959 calendar! To see why... push out the perforated area above and slide your present paper underneath for comparison. There's a convincing improvement when the paper contains **CALCOFLUOR*** WHITE

(see other side)

In this picture Mr. Harrington is discussing handling of art for the Pan Am calendar with Louis M. Prudhomme, left, Manufacturing Processing Assistant.

This printer is profiting because he has met today's demand for whiter-than-white stocks by recommending CALCOFLUOR-treated papers. These brilliant white papers give illustration and text a crisp, clean, eye-catching appeal... enhance your own good printing work...create new sales opportunities for you!

The use of CALCOFLUOR-treated stock can help your customers increase the effectiveness of their calendars, sales brochures, annual reports, letterheads, packaging, etc....

For dramatic proof of the striking difference these whiter papers can make, ask your jobber for samples, or write to Cyanamid.

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"Pan American naturally required the ultimate in color reproduction quality for their world-famous calendar. That's why we recommended a calender stock treated with CALCOFLUOR in preference to all others. Its extra sparkling whiteness promised—and delivered—a truly outstanding job."

—says Mr. Stephen H. Harrington,
Assistant to the President,
Brown & Bigelow
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Symbol for Quality Dyes

Important "links to"

big savings in lime recovery

• First, an Allis-Chalmers lime sludge kiln recovers lime at approximately half the cost of new lime. Second, the patented chain system for heat recovery in Allis-Chalmers kilns saves up to 40% of fuel costs. Third, the efficiency of this heat recovery system minimizes dust loss to a point that 10% extra capacity can be realized.

For complete information, call your A-C representative, or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wisconsin.

The carefully designed chain system in the feed end of an Allis-Chalmers kiln accelerates drying three ways:

1. Direct transfer of heat from chains to sludge.
2. Material is lifted into path of hot gases.
3. Flow of gases is directed over sludge bed under suspended chains.

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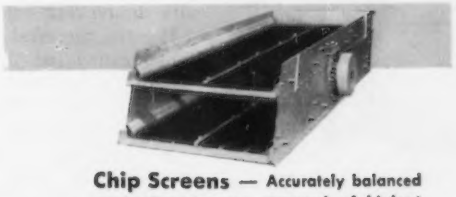
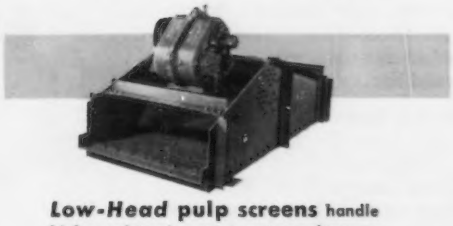
Low-Head is an Allis-Chalmers trademark.



Chip Screens — Accurately balanced mechanism assures removal of highest possible percentage of chips, dust, dirt. Chip travel is uniform, stratification rapid.



***Low-Head* pulp screens** handle high consistencies, save water and power. Maintenance is simple. Mechanism can be removed as a unit.

(Continued from page 29)

valves. Lift checks will operate in horizontal lines only. Line pressure lifts the disk, and path of flow is in a changing course as through a globe valve. When flow reverses, the disk falls to its seat and cuts off backflow.

Variations in Gate Valve Seating Designs

Solid Wedge Disk

Most widely used disk in gate valves. Has matching tapered body seating surfaces. Favored for its strong, simple design and single part.

Can be installed in any position without danger of jamming due to misalignment of parts.

Ideal for steam service, and well suited for water, air, oil, gas, and many other fluids.

Most practical for turbulent flow because there's nothing inside to vibrate and chatter.

Refacing of the tapered disk surfaces isn't easy, but there's little need for it if valve is used fully opened or fully closed.

Might be subject to some sticking when subjected to extreme temperature changes where body contracts more than disk. For such conditions, Crane flexible wedge disk is recommended.

Double Disk

The parallel-faced double disk makes closure by descending between matching seats in valve body. On contact with stop in bottom of valve, wedges or spreaders between disk faces force them squarely against body seats.

First opening movement releases disks, and continued operation raises them clear of seat openings.

Widely used on water service, in waterworks and sewage disposal plants; also on oil and gas, in cross-country pipe lines.

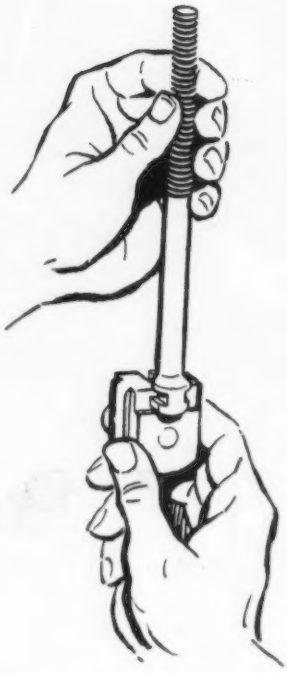
Unsuited for steam because rapid expansion and high velocity of steam flow tend to vibrate loose internal parts in disk assembly and hasten their wear.

Because disks and body seats are perpendicular and parallel, repairing or refacing to compensate for wear is easier than on a tapered wedge disk.

Should be installed with stem above horizontal for best results. Many spreader mechanisms are subject to jamming when installed with stem below horizontal line.

Flexible Wedge Disk

Developed especially to overcome sticking in high-temperature service with extreme temperature changes. Solid through center, but not around outer portion where it's flexible. Eliminates sticking and opens easily under all conditions.



9—Disk-Stem Connection on Globe Valve

Split Wedge Disk

A 2-piece wedge disk that seats between matching tapered seats in body.

Spreader device is simple, and integral with disk halves. No added parts.

When closing, last turn of handwheel forces disks against the seats. When opening, the first turn releases the disks from the seats.

10—Removing Globe Valve Disk and Seat

Split Wedge Free-to-Rotate Disk

A variation of conventional split wedge disk design. Here the disks share a common carrier—are free to rotate, but are accurately guided by integral flanges. Design minimizes galling, seizing, and concentrated wear, particularly in high alloy valves.

Gate Valve Disk-Stem Connections

In a gate valve, the sole function of the stem is to raise and lower the disk. In doing its job, the stem should not be subject to corollary stresses and strains of service conditions on the disk.

Thus, with gate valves, especially those used for higher pressure installations, a relatively loose disk-stem connection is desired.

If the connection were rigid, any side thrust on the disk caused by pressure and flow, would readily be transmitted to the stem, and tend to strain and possibly bend it.

A properly fitting loose connection relieves strain on the stem due to any lateral movement of the disk.

Variations in Globe Valve Seating Designs

Plug Type Disk

Long taper with corresponding seat, giving a wide area of seating contact, makes the plug-type disk superior to all others for severe throttling service, such as blow-off, soot-blower, boiler feed.

Because of wide seat bearing, most cuts and nicks by dirt, scale, and other foreign matter in flow are seldom big enough to cause leakage.

Plug disk shape, in proper combination of metals for service is most effective in resisting erosive effects of close throttling.

Construction permits replacement of seat if necessary.

Composition Disk

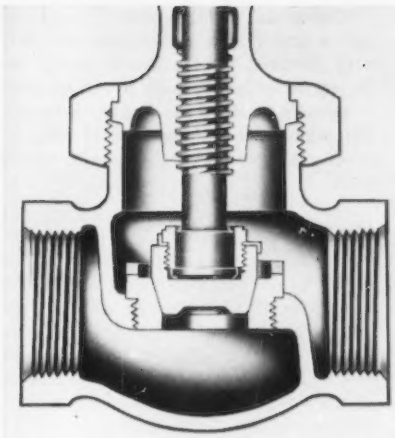
A useful design in brass and iron valves for adaptability to many services and for quick repairs.

Disks available in compositions suitable for steam, hot water, cold water, oil, air, gas, gasoline, and many other fluids. Disk change is quickly made with slip-on disk holder.

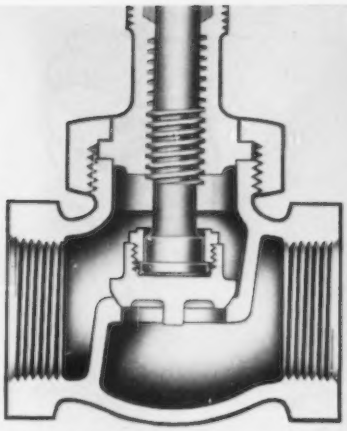
Highly regarded for dependable, tight seating on hard-to-hold fluids such as compressed air. Flat face of relatively "soft" disk seats against a raised crown in body.

Small particles of foreign matter are imbedded in disk, preventing seat damage and leakage.

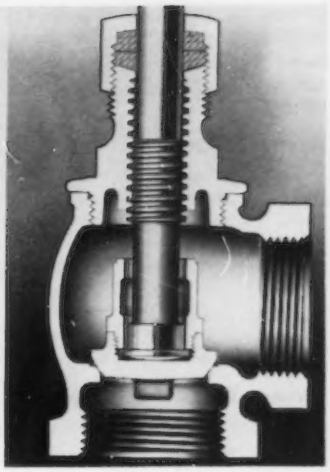
Suited for all moderate pressure services except close regulating and



11—Plug Type Disk Globe Valve



12—Conventional Globe Valve Disk



13—Angle Seating Globe Valve

throttling, which can rapidly cut out the disk.

Disk and seat in globe valves can be conveniently repaired or renewed—often without removing the valve body from the line. (See figure 10.)

Conventional (Ordinary) Disk

A good seating design for many not-too-severe services, but not for close throttling.

Disk has relatively narrow contact with body seat—virtually a line bearing. This narrow metal area, in closely throttled high-velocity flow, is subject to erosion and wire-drawing.

Deposit of particles of foreign matter on seat makes tight closure virtually impossible.

Yet uniform deposit on seat, such as coking action in oil refineries, is more easily broken down by the narrow bearing. It makes a tight metal-to-metal contact easier than a wide seat.

Seat and disk can be conveniently serviced.

Needle Point Disk and Seat

Needle point valves are designed to give fine control of flow in small-diameter piping. Their name is derived from their sharp-pointed conical disk and matching seat. They come in globe and angle patterns, in brass and steel, and find usage on steam, air, water, oil, gas, light liquid, fuel oil, and similar services.

Stem threads are finer than usual so that considerable movement of stem is required to increase or decrease opening through seat.

Usually, these valves have reduced seat diameter in relation to pipe size.

Angle Valve Seating

Remember the angle valve when looking for globe valves. If there's a right angle turn in the line near where you need a valve, an angle pattern gives you important advantages.

It's available with the same seating variations as shown here for globe valves: plug-type disk, conventional, and composition disk.

Has considerably reduced turbulence, restriction of flow, and pressure drop because flow makes one less change of direction than in globe valve.

Angle valve cuts down on piping installation time, labor, and materials, also reduces number of joints or potential leaks by serving as a valve and a 90 degree elbow.

Disc-Stem Connection in Globe Valves

The stem in a globe valve not only raises and lowers the disk but also must help guide it squarely to its seat.

Thus, unlike a gate valve, the globe valve disk-stem connection must be relatively close fitting to prevent any extreme lateral motion of the disk that would cause it to cock and seat improperly.

But, once the disk and seat are joined, the disk must stop turning while seating is completed by the stem. This will avoid metal-to-metal friction between disk and seat that would be destructive to seating surfaces.

The solution of this need is a swivel action in globe valve disk-stem connections, which permits true and tight seating without damage to seating surfaces.

Valve Seating Materials—Key to Their Performance

The seat and disk constitute the "heart" of a valve, do most of its work. The material from which these parts are made, therefore, becomes important. And the tougher the service, the more severe the demand on seating. Valve manufacturers recognize this fact by providing a wider choice of seating materials as valves go up the pressure-temperature scale or are offered for more rigorous service.

For relatively low pressures and temperatures and for ordinary fluids, seating materials are not a particularly difficult problem. Brass and iron valves usually have brass or brass-faced seating surfaces, or iron valves may be all iron. Non-metallic disks are compounded to resist the temperature of steam or the "solvent" effect of fluids like oil or gasoline.

As pressures and temperatures increase or as the service becomes severe, careful consideration must be given to many factors, no one of which can be overemphasized to the detriment of others. Long, trouble-free life requires the proper combination of hardness, wear-resistance, resistance to corrosion, erosion, galling, seizing, and temperature. Nor does it follow that a satisfactory combination in one instance will serve equally well in all others. Type of valve is a limiting factor, too.

Selection of seating materials for corrosive fluids, regardless of pressure-temperature, is almost endless. Included are many types of alloys, as well as linings or coatings of many kinds.

Safest policy in specifying seating materials is in close adherence to valve manufacturers' recommendations, usually found in catalogs, otherwise supplied on request.

Bonnet and Bonnet-Joint Characteristics

In choosing valves, the service characteristics of the bonnet joint should not be overlooked. Bonnets and bonnet joints must provide a leakproof

closure for the body. There are many modifications, but the three most common types are screwed-in bonnet, screwed union ring bonnet, and bolted bonnet.

Screwed-in Bonnet

The simplest and least expensive construction, ordinarily used on smaller gate, globe, and angle valves, and recommended when frequent dismantling is not needed. When properly designed with running threads, and carefully assembled, the screwed-in bonnet makes a durable pressure-tight seal, suited for many services.

Screwed Union Ring Bonnet

A good choice for quick dismantling and reassembly—yet a strong, well-reinforced joint.

Convenient where valves need frequent inspection or cleaning—also for quick renewal or changeover of disk in composition disk valves.

Separate union ring applies direct load on bonnet to hold a pressure-tight joint with body. Turning motion used to tighten ring is spent between shoulders of the ring and bonnet. Hence, the point of seal contact between bonnet and body is less subject to wear from frequent opening of the joint.

Contact faces are less likely to be injured in handling. Union rings give the body added strength and rigidity against internal pressure and distortion.

While ideal on smaller-size valves, it is impractical on large sizes.

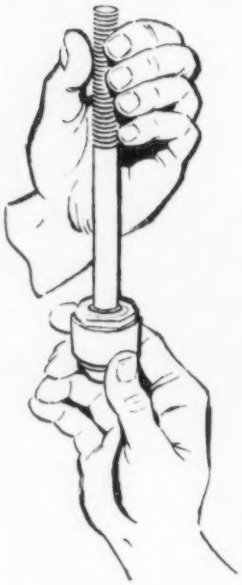
Bolted Bonnet Joint

A practical and commonly used joint for larger-size valves or for higher pressure applications.

Adaptable to all types of gasketing.

Multiple bolting, with small diameter bolts, permits equalized sealing pressure without excessive torque needed to keep large threaded joints tight. Only small wrenches are needed.

Has practically no limitation for size. Only the highest pressures and temperatures tax its capacity to permanently hold tight.



14—Disk Stem Connection in Globe Valve

Pressure-Seal Bonnet Joint

Newest and most effective bonnet joint for sealing the highest pressures and temperatures, especially in steam service.

Tightness of seal does not depend on nuts, bolts, and threads as in conventional bonnet joints. Instead it utilizes line fluid pressure to seal the joint. The greater the pressure, the tighter the seal.

The actual joint is inside the valve, and is sealed with a wedge-shaped seal ring. Internal fluid pressure acting on the entire underside area of the bonnet, is concentrated at the smaller contacting area of the wedge-shaped ring to make a pressure-tight-metal-to-metal joint.

Lip-Seal Bonnet Joint

Used mainly in smaller size valves for high-pressure/high-temperature service. Extra long thread engagement carries mechanical load. Weld at lip seals against possible leakage past flat contact between body and bonnet. Design eliminates bonnet joint maintenance, allows a more compact valve.

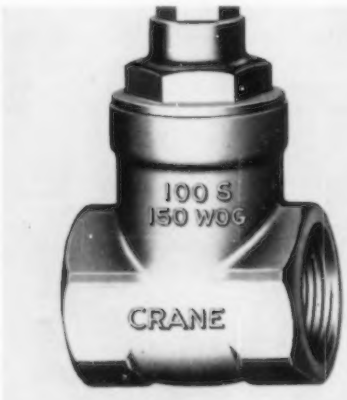
Variations in Valve Stem Operation

Although in many valve applications the type of stem operation makes little or no difference, in other cases it can be important. A simple example of the latter is the need for a self-indicator to show open or closed position, as in the case of the rising stem valve, or conversely, the need of a non-rising stem valve because of lack of head room. This page shows how stem operating designs are adapted to service needs.

Rising Stem with Outside Screw

On the valve, whether opened or closed, the stem threads always remain outside the valve body. They are not subjected to corrosion, erosion, sediment, or any elements in the line fluid that might damage stem threads inside the valve body. Being outside, they can be lubricated easily when necessary. The stem rises through the handwheel and yoke sleeve to which it is threaded. The stem does not turn.

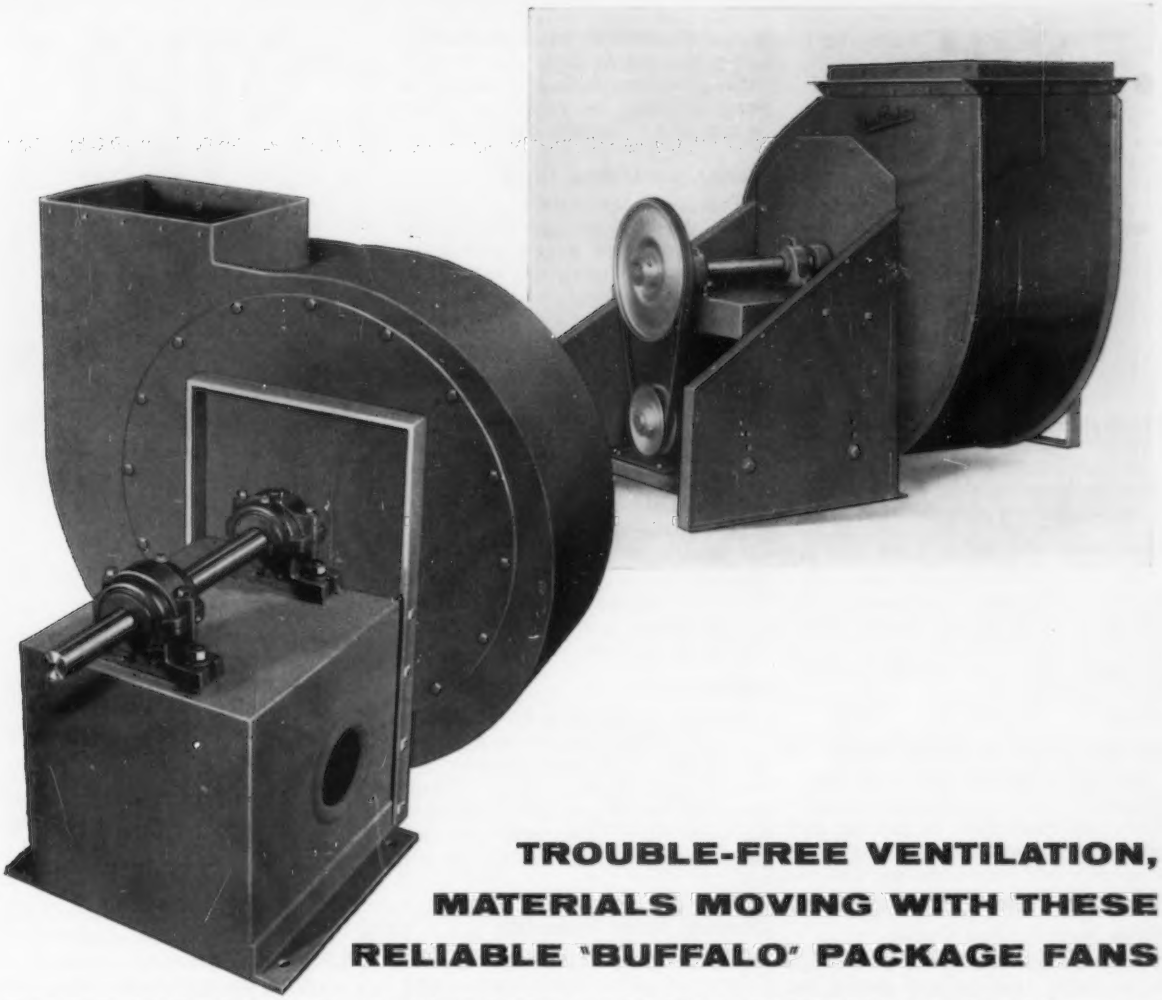
By the position of its stem, this valve



15—Screwed-in Bonnet

16—Screwed Union Ring Bonnet

17—Bolted Bonnet Joint



TROUBLE-FREE VENTILATION, MATERIALS MOVING WITH THESE RELIABLE "BUFFALO" PACKAGE FANS

"BUFFALO" INDUSTRIAL EXHAUSTERS

"Buffalo" Industrial Exhausters are available in a wide variety of models, capacities and arrangements to handle your most demanding air or material handling jobs with the utmost efficiency and dependability. The heavy welded steel plate housing is adjustable to any desired direction of discharge. Ease of maintenance is assured by the removable front and back plates. The several arrangements in the line include both belted and direct-connected drives. The 8-bladed, all-welded air wheel effectively exhausts hot air, gases, fumes and light dust. Corrosion-resistant construction can be specified. Two types of material wheels cover all exhausting requirements, from emery dust, sawdust, paper, and chips to long shavings and other stringy substances. Capacities range from 600 to 37,000 cfm.

There's a rugged, reliable "Buffalo" Industrial Exhauster to fit most air or material handling requirements. Call in your "Buffalo" Representative, or write for full information in Bulletin 3576-B.

"BUFFALO" BELTED VENT SETS

Where low initial and operating costs are important . . . where a quiet fan is necessary . . . where a "package" unit is desirable . . . more and more industrial users are turning to "Buffalo" Belted Vent Sets. These versatile units are especially adaptable to smaller system requirements, or for use when central system ventilation requires augmentation. They offer quiet, stable performance, high efficiencies and the non-overloading characteristics of the largest "Buffalo" Fans. A lightweight package, they can be quickly and easily installed indoors, outdoors or as power roof ventilators. Available in capacities from 500 to 20,000 cfm (capacity can be modified at any time by changing motor or fan pulleys).

"Buffalo" Belted Vent Sets may be the economical answer to *your* smaller system ventilation needs. Contact your nearest "Buffalo" Engineering Representative, or write for Bulletin 3720-A.

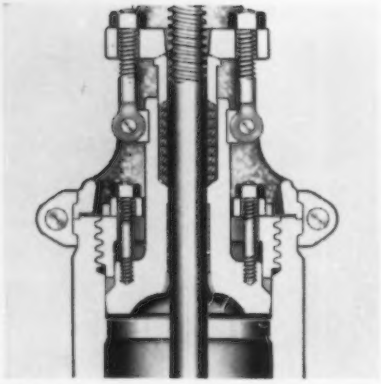
Every "Buffalo" product features the famous "Q" Factor — the built-in QUALITY that provides trouble-free satisfaction and long life.

BUFFALO FORGE COMPANY

BUFFALO, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

VENTILATING AIR CLEANING AIR TEMPERING INDUCED DRAFT EXHAUSTING
FORCED DRAFT COOLING HEATING PRESSURE BLOWING



18—Pressure Seal Bonnet Joint

signals to operators whether it is opened or closed. It needs adequate head room.

Rising Stem with Inside Screw

This is the simplest and most common stem construction for gate, globe, and angle valves in the smaller sizes. Stem turns and rises on threads inside the valve. Position of handwheel indicates position of disk—opened or closed.

Non-Rising Stem with Inside Screw

Generally used on gate valves only, this stem does not rise, but merely turns with handwheel. In turning, the stem threads raise or lower the disk. Since stem only rotates, packing wear is less. Ideal where head room is limited.

Sliding Stem Is Often Useful

The sliding stem valve is useful where quick opening and closing is wanted. A lever takes the place of the handwheel, and stem threads are eliminated. Available in both gate and globe valves with mechanism for manual or power operation.

Variations in Stuffing Box Design

Requirements

Stuffing box must effect a tight seal around the stem to retain pressure inside piping system. Stem must be tight without binding. Package is subject to wear and must be periodically compressed and eventually replaced.

Packing Nut Without Gland

Used on low-pressure and small-size valves. With wheel and packing nut removed, this type is easier to repack than ordinary gland type on valves with small diameter stem.

Packing Nut with Gland

Conventional type packing nut with loose gland. Gland has small lip at top edge so that it can be pried out with screwdriver tip if jammed all the way down.

Bolted Gland

For smaller size high pressure-temperature valves. Deep stuffing box with one-piece bolted gland and swing-type eye bolts. Upper portion of opening through gland is enlarged to prevent binding on the stem.

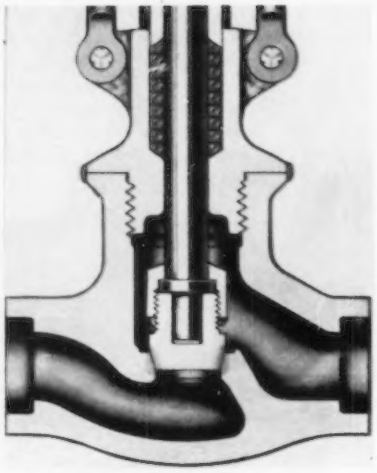
Lantern Type

Superior construction for larger-size high pressure-temperature valves. Cooling chamber with lantern spacer and three rings of packing below to wipe stem clean before it passes into the sealing rings above. Two-piece ball-type gland and flange with swing-type eye bolts.

Common Valve Materials

It pays to know the range of materials from which valves are usually made; and to understand the pressure, temperature, and structural limitations of each material. For it may be highly unsafe to use materials for services beyond their recommended maximum.

Most commonly used valves fall into the four general material groups shown below. Variants in each of these groups have individual service characteristics.



19—Lip Seal Bonnet Joint

Brass

Brass should not be used for temperatures exceeding 550° F.

Steam brass is widely used in valves and fittings for temperatures up to 450° F. It is an alloy of copper, tin, lead, and zinc.

Special bronze is a high-grade copper-base alloy used in piping equipment for higher pressures and for temperatures up to 550° F.

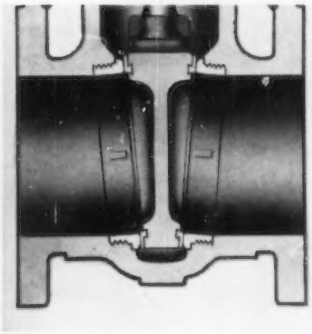
Iron

Cast iron for valves is regularly made in three grades. All conform to A.S.T.M. Specification A126. The Class A grade is commonly used for small valves and fittings having light metal sections, the Class B for medium metal thicknesses, and the Class C, with high tensile properties, for castings for large-size valves.

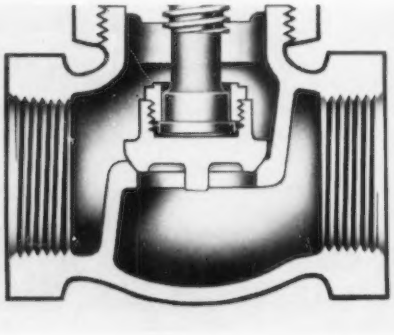
Cast iron should not be used for temperatures exceeding 450° F.

Steel

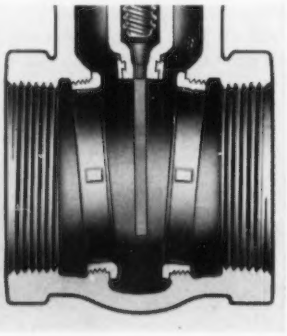
Steel is recommended for high pres-



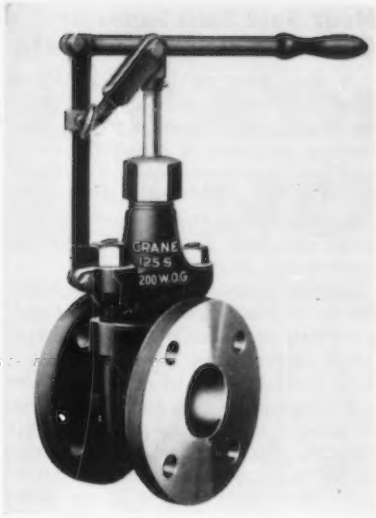
20—Rising Stem with Outside Screw



21—Rising Stem with Inside Screw



22—Non-Rising Stem with Inside Screw



23—Sliding Stem Valve

sures and temperatures and for services where working conditions, either internal or external, may be too severe for brass or iron. Its superior strength and toughness, and its resistance to piping strains, vibration, shock, low temperature, and damage by fire afford reliable protection when safety and utility are desired. Many different types of steel are both necessary and available because of the widely diversified services steel valves and fittings perform.

Malleable Iron

Malleable iron is particularly suited for use in screwed fittings, unions, etc., and also is used to some extent for valves. It is characterized by pressure tightness, stiffness and toughness. It withstands expansion-contraction stresses and shock better than cast iron.

How to Read Valve Service Rating Markings

In addition to the maker's brand and size mark, a basic service rating appears on most valves. Pressure and temperature ratings are expressed in terms of steam, unless otherwise indicated.

Steam Ratings

Steam ratings are used as a basis for determining the suitability of a material for a given application. For lower temperatures the safe working pressure of a material is usually greater than the steam rating.

Cold Ratings

Most valves have two service ratings. In addition to the steam ratings, explained above, cold service ratings are usually designated by the mark WOG, which stands for cold water, oil, or gas, non-shock.

Steel Ratings Are Different

Cast and forged steel valves and fittings bear a mark such as 150, 300, 600, etc. These figures denote the maximum pressure at a certain maximum temperature for which an item is suited. A certain 600-pound steel valve, for example, may be suited for 600-pound pressure at a temperature of 850° F. But if the temperature exceeds that point, up to 1000° F., let's say, the valve is not recommended for pressures over 170 pounds. This important effect of temperature makes it imperative to know both pressure and temperature conditions of a service, and to consult the manufacturer's service recommendation tables before selecting steel materials for it.

Temperature and pressure are not always the only facts to be considered, however. Frequently, steel materials are used for their structural ability to meet unusually severe conditions beyond the range for which brass, bronze, or iron are recommended, such as shock, vibration, line stresses, fire hazard, etc.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1958	May 17 87.9	May 24 85.7	May 31 81.3	June 7 82.2r	June 14 86.8
1957	May 18 96.4	May 25 94.9	June 1 90.4	June 8 94.1	June 15 94.8

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	86.9	89.5	89.5‡	87.4‡	86.4‡	—	—	—	—	—	—	—	—
1957	94.2	97.0	97.1	94.0	94.6	93.3	75.6	90.7	86.0	93.0	90.7	81.5	90.9

‡Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1951	1952	1953	1954	1955	1956	1957	1958
Year to Date	101.7	93.9	94.2	93.6	95.8	101.3	95.0	87.1
Year Average	98.0	88.6	92.3	91.6	94.0	97.9	90.9	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

1958	May 17 86	May 24 85	May 31 83	June 7 77	June 14 90
1957	May 18 95	May 25 95	June 1 88	June 8 86	June 15 94

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	80	86	88	84	84	—	—	—	—	—	—	—	—
1957	91	94	94	92	93	91	72	94	91	97	92	79	90

† *Percents of operation based on "Inch-Hours" reported on a 6-day basis.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING June 14, 1958	LAST WEEK ENDING June 7, 1958	CUMULATIVE TO DATE Jan. 1 to June 14, 1958
% Activity	90%	77%	85%
	Tons	*Tons*	*Tons*
Total Production	290,704	248,617	6,133,263
Liner	107,616	77,830	2,005,361
Corrugating Material	43,624	37,104	906,277
Chip & Filler Board	5,446	4,400	111,890
Total Containerboard	156,686	119,334	3,023,528
Folding	51,047	45,639	1,209,690
Set-Up	10,791	10,433	243,312
Special Food Board	25,924	26,044	585,276
Other	46,256	47,167	1,071,457
Total Boxboard	134,018	129,283	3,109,735
Total Orders	*Tons*	*Tons*	
Received	271,307	304,529	
Unfilled End of Week	384,471	404,015	

NEW EQUIPMENT AND SUPPLIES

Pulpwood Loader Is Available for Fork Trucks

The pulpwood loader mounts on the truck in one assembly of upright rack and lifting mechanism. Tilting action makes possible loading of both sides of a flat car or trailer without moving the fork truck. The bumper rack is heavily reinforced for maximum strength, and new upright design provides excellent driver visibility.

The device is interchangeable on "Clarklift" pneumatic-tire fork trucks of 15,000 through 20,000 pounds capacity. For operation over extremely rough terrain the unit also is available on four-wheel drive "Ranger" models up to 40,000 pounds capacity.

Complete specifications of the loader attachments can be obtained from Clark Equipment Co., Industrial Truck Division, Battle Creek, Mich.

Improved Emulsifiers Cut Fiber Recovery Costs

To offset cut profit margins, mills accumulating oiled, waxed, or wax-polyethylene broke reportedly can recover costly fiber easily. The appropriate Comco Emulsifier is added to disintegrated pulp which has been heated to a temperature above the melting point of the impregnating or coating material, while the pH is adjusted to insure maximum emulsification. Then the emulsified materials are washed from the pulp. This method works efficiently in beater or hydrapulper, and mill white water can be used throughout. Depending on the types and grades of paper being produced, the recovered fiber can be used alone or in combination with new pulp.

Waxed waste may be thus treated as a source of fiber and internal size. The waste is treated and appropriate quantities are blended with new pulp. This works equally well for machine-made paper and molded pulp shapes.

Actual mill experience has proven that as little as one per cent of an appropriate emulsifier, on oil basis, gives 95-98 per cent oil removal in de-oiled broke. As little as 5 per cent of appropriate emulsifier, on wax basis, gives 98 per cent wax removal in de-waxed broke, according to the manufacturer.

This group of Comco emulsifiers has the property of being insoluble in cold water, only partially dispersible in hot water, and soluble only in oil or wax. Variations which work in acid or alkaline conditions are available. For further details about emulsifiers write Boler Petroleum Co., Boler Building, 119 Coulter Ave., Ardmore, Pa.

Floor Seal Said Superior On Both Wood and Concrete

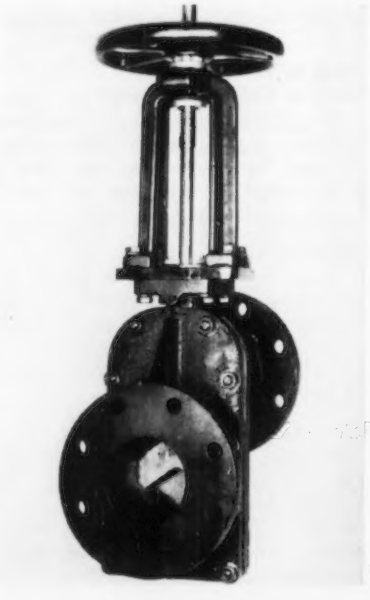
A new kind of floor seal (called Tremseal) which dries hard in three hours and which possesses twice the abrasion resistance of conventional type seals has been developed by The Tremco Mfg. Co., 8701 Kinsman Road, Cleveland, Ohio. The product is a synthetic elastomer and can be used on either wood or concrete floors.

In tests conducted by an independent testing laboratory a bare concrete panel, a concrete panel treated with a conventional oleo-resinous floor seal, and a third concrete panel treated with Tremseal were subjected to an equal amount of abrasive wear. The tests showed that the bare concrete panel wore 14 times as fast as the panel treated with Tremseal, seven times as fast as the panel treated with a conventional oleo-resinous floor seal.

Ratogate Valve for Flow Control

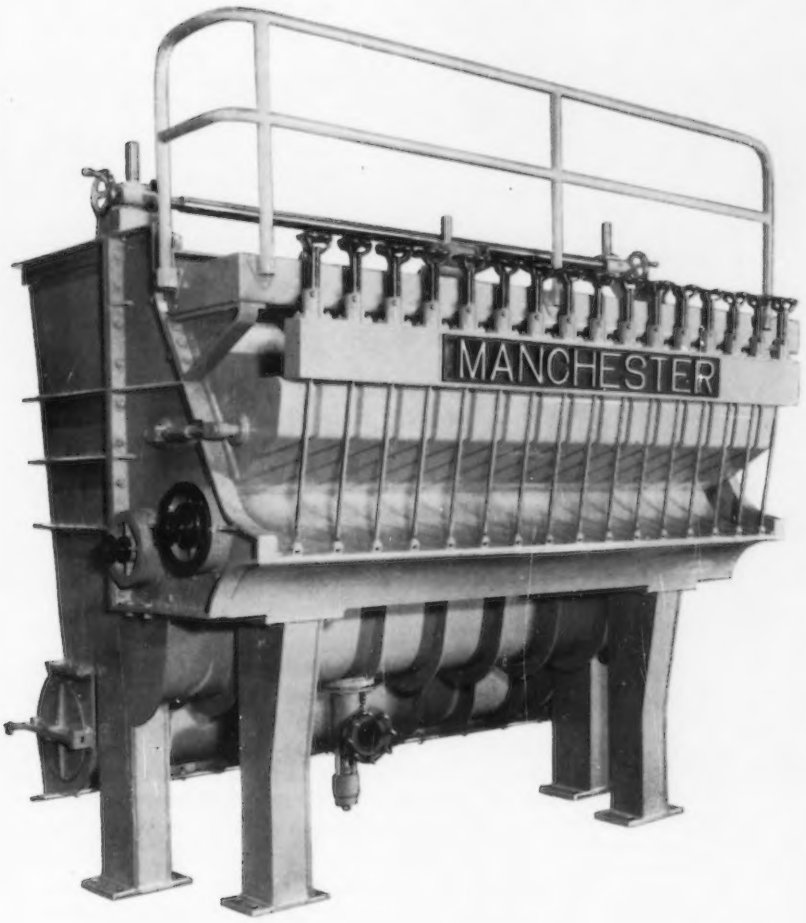
A non-plugging, handwheel operated ratogate valve for flow control of pulp stock and other slurries has been introduced by Fischer & Porter Co., 753 Jacksonville Rd., Hatboro, Pa.

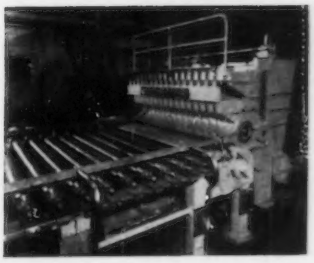
The Z-shaped body creates a controlled turbulence which keeps the particles in suspension and a diamond-shaped port prevents plugging at small valve openings. The valve is offered with either an iron or stainless steel body, both having a stainless steel gate and stem. A variety of sizes from 3 to 12 inches are available.



HEADBOX BY MANCHESTER

...for a mill that knows





FLOW CONTROL is a built-in feature of this Manchester headbox.

Deceleration and acceleration of the stock occurs at the proper points, to facilitate air removal and to prevent flocculation.

Other important design details include:

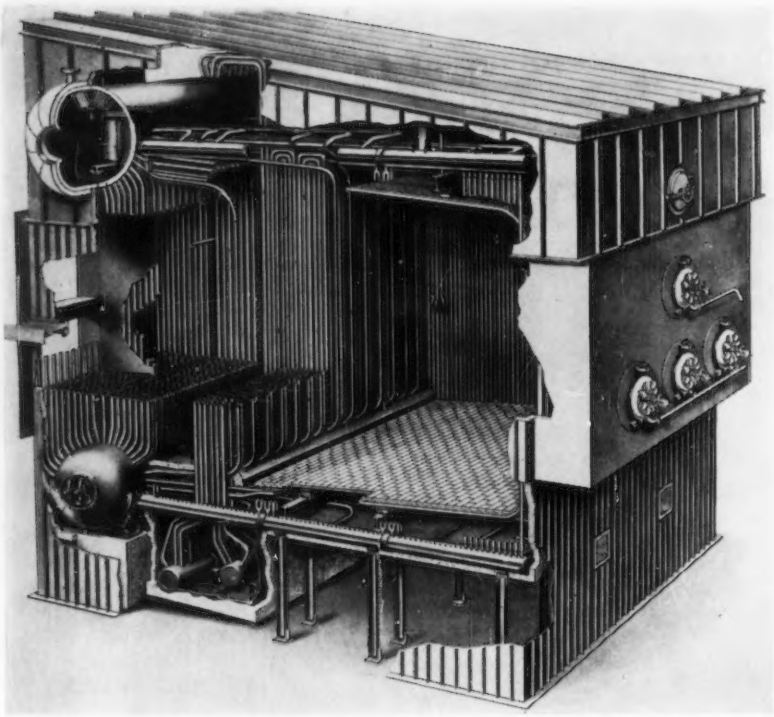
- **Venturi type inlet control valves**
- **Whirl chamber—with full diameter clean-out doors**
- **Pneumatic dump valve**
- **Adjustable rectifier roll in the slice throat**
- **Slice opening fitted for individual and master controls**
- **Heavily reinforced stainless steel construction throughout**

A Manchester headbox will help you produce top quality sheets every time. Write for complete information.

THE MANCHESTER MACHINE COMPANY
Middletown, Ohio

MMC

SPECIALISTS IN DESIGNING AND BUILDING PAPER MILL MACHINERY



Steam Generator Utilizes Prefabricated Furnace Panels

Babcock & Wilcox Co., 161 East 42 St., New York City, has placed on the market an oil and/or gas fired, pressurized-furnace steam generator designed for power, process or heating loads requiring steam capacities up to 400,000 pounds per hour. Designated the "PFI" (Power For Industry) boiler, the new unit offers an advanced design in "Membrane Wall" prefabricated furnace construction, which utilizes welded tubular furnace wall panels. It is available for steam pressures up to 1150 pounds per square inch, and for superheated steam temperatures up to 900°.

Simplicity of construction and overall compactness of the PFI boiler can be readily observed in the above cutaway drawing. The integral combustion air duct at top of unit conserves space and reduces the need for extra ductwork. At left center is the drainable superheater, which permits the draining of water after a boiler shut-down, thus providing both easy storage and prompt start-up. Burners at extreme right are centralized for quick and easy observation and adjustment.

Tri-Purpose Tester Determines Printability

The instrument, which measures the smoothness, porosity and softness of paper and paperboard, was developed to test the printing quality of paper.

The device measures a given air-leakage over or through the paper. Air, at a low, uniform pressure, is supplied by an inverted cylinder, carefully standardized as to volume and weight, floating freely in an outer cylinder partly filled with oil. Air is forced downward through an open tube, to the upper orifice plate against which the sample is clamped.

Each 50 c.c. is marked by rings on the inner cylinder (also each 25 c.c. from 0 to 100 line.) The test consists of timing the rings as they drop past the upper edge of the outer cylinder using a timing device. Interchangeable lower test plates provide for the measuring of softness, smoothness or porosity.

Full details on the Tester are available from W. & L. E. Gurley, Troy, N. Y. Ask for Bulletin 1400.

New Wet End Additives

Two new wet-end additives for paper and boxboard, Adcol 300 and Arobond 80, are being marketed by the Industrial Cereal Products Dept., Archer-Daniels-Midland Co., Minneapolis, Minn. Both are derived from sorghum grain starch sources. They replace conventional additives such as starch and gums.

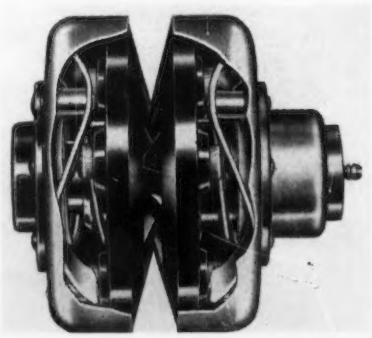
Adcol 300 is specially processed for high quality wet-end applications. It can be added dry to the beater for board, or cooked in the normal manner for addition to the headbox or beaters.

Arobond 80 is pregelatinized and is recommended for wet-end addition where cooking equipment is not available and water dispersibility is desired The starch granules have been converted to a water dispersible form for easiest application in many adhesive and colloidal uses. Dry addition to the beaters or hydro-pulpers yields lump-free dispersions for all quality applications.

In addition to reported cost savings over other wet-end additives, the unique chemical characteristics of Adcol 300 and Arobond 80 is said to provide superior fiber and filler retention properties, improved printability plus good fold, strength and scuff resistance properties without loss of brightness or opacity.

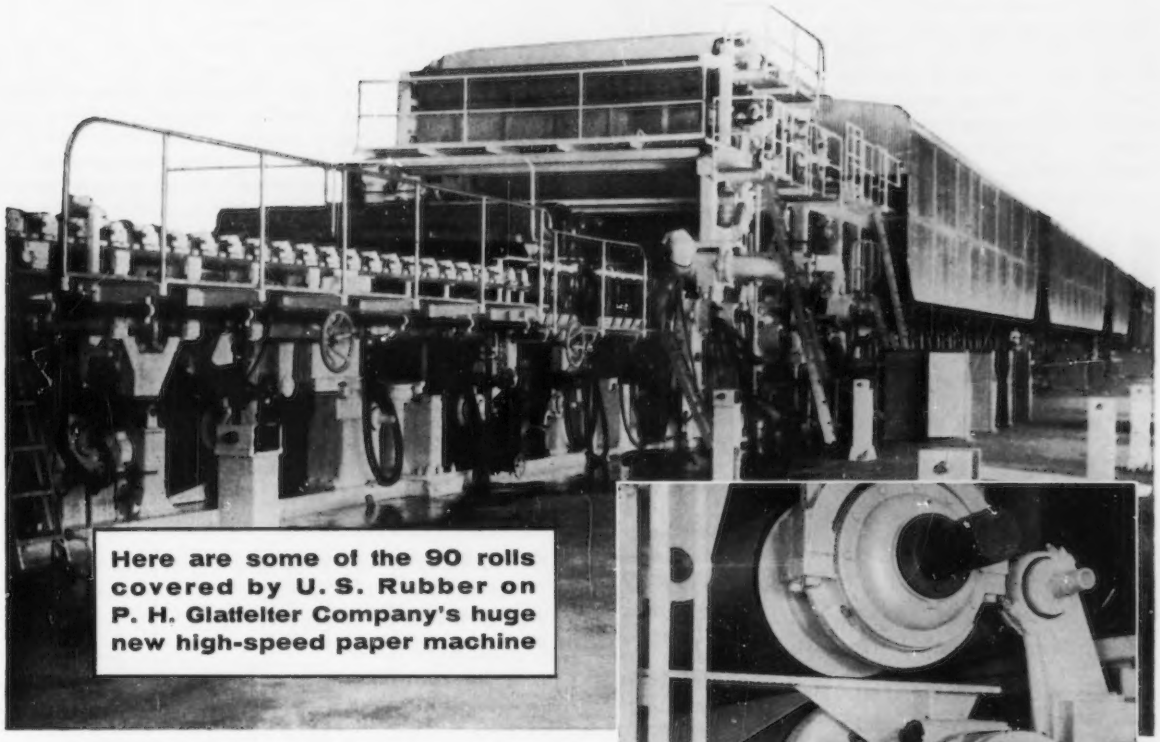
Pulley Provides Constant Speed With Varying Load

Constant speed ratio reportedly can be maintained over a wide range of load variation with a cam-controlled variable speed pulley manufactured by Lovejoy Flexible Coupling Co., 4999 W. Lak St., Chicago, Ill. This pulley

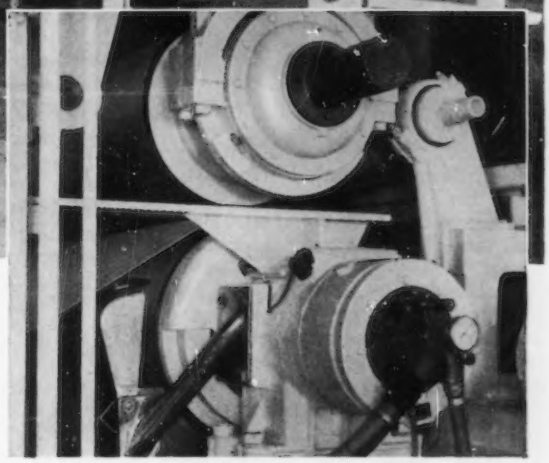


ROLL COVERINGS

New high-speed paper machine can roll out 2000 ft. of book paper per minute



Here are some of the 90 rolls covered by U. S. Rubber on P. H. Glatfelter Company's huge new high-speed paper machine



Suction press section of the new machine. Rolls are U. S. Rubber covered for uniform density and rubber-to-metal adhesion, for resistance to water, chemicals and abrasion, and for elimination of blisters and ply separation.

One of the leading producers of book and fine paper, the P. H. Glatfelter Company, recently installed this new machine, one of the largest and most modern of its type. Housed in a new building almost three blocks long, the machine can produce 2000 feet of paper per minute from a wire 188" wide.

Says N. B. Rohrbaugh, chief engineer of Glatfelter: "Just about all the rubber rolls are covered by U. S. Rubber. In fact over 80% of *all* the rubber products in our new mill are by 'U. S.' We've always had good experience with their products and service."

On every installation, "U. S." roll covering specialists carefully study the operating conditions. Then, with the help of the most modern equipment and experienced technicians, they produce *precision-perfect* roll coverings to meet the most exacting specifications. Get in touch with any of the 28 "U. S." District Sales Offices or write us at Rockefeller Center, New York 20, N. Y.

In Canada, Dominion Rubber Co., Ltd.

Mechanical Goods Division

United States Rubber

See things you never saw before. Visit U. S. Rubber's New Exhibit Hall, Rockefeller Center, N.Y.

employs an exclusive cam and cam follower assembly which automatically regulates belt tension to the requirements of the load. Known as "Load-O-Matic" control, the result is that pulley speed is made independent of the load and load variations. "Drag" is eliminated and high shock absorbency provided.

Each of the two driving disks contains its own cam and cam follower assembly, so that the pulley is actually double cam-controlled. This, in addition to its load-to-tension function, provides constant belt alignment. Springs are used only to keep the driving disks in contact with the belt; they are not driving members. Pullies are available in sizes from .5 to 5 h.p., ratios 2.5/1 (single pulley) and 6.25/1 (double pulley).

Static Power Adjustable Speed Drives

Cutler-Hammer Inc., Milwaukee, Wis., has announced a completely new line of adjustable speed d.c. packaged drives featuring static power conversion.

Ultraflex Packaged Drives, trade name for the new devices, utilize light, compact static power components to replace the conventional motor generator set. The conversion units eliminate all bearings, brushes, commutators, shafts and couplings of rotary type d.c. power sources with a consequent reduction in installation and maintenance costs. Compact size of the drive effects savings in floor space, and reduction in weight permits wall mounting of many sizes.

Drives are available in two forms—the Ultraflex E, a 1 to 40 horsepower electronic adjustable speed drive; and the Ultraflex M, a 1 to 200 horsepower magnetic amplifier adjustable speed drive. All drives include three basic components: the Ultraflex enclosed panel, housing the conversion and control units; an operator's station, which incorporates start-stop pushbuttons and a speed adjusting potentiometer or regulator; and the latest type industrial d.c. motor.

Radiant Burners Step-up Dryer Capacity

It is generally recognized that drying can be accomplished efficiently only after the material has been heated to a suitable temperature. Heat-up time can be costly in equipment and space; therefore the ability of radiant, or infra-red, gas burners to transfer a vast amount of heat in a short time and space to the web would seem to provide an economical way to increase dryer capacity.

In paper mills, burners installed at the wet end of the machine reportedly increase drying capacity; on coating operations, the radiant heat provides high speed drying without mechanical contact.

The burners are available from Process Heating Co., P. O. Box 171, Paramus, N. J. They can be installed in virtually any position.

Plastic Gas Absorber

The Air Cleaner Div., Buffalo Forge Co., Buffalo, N. Y. is making a gas absorber to scrub vent gases and mists which might vary in composition considerably. The absorber is recommended for handling laboratory venting and small process ventilation problems.

The unit shell is fabricated entirely of quarter-inch polyester resin bonded fiber glass which is resistant to fire and to a wide range of chemical attack. All interior spray piping and nozzles are of rigid poly vinyl chloride as are the washer cell frames.

The absorber consists of three separate stages, the first of which contains a Monel perforated Neva-clog screen to remove solids or other particulate matter. The second stage contains four-inch deep fiber glass filter cells. Both the first and second stages are sprayed

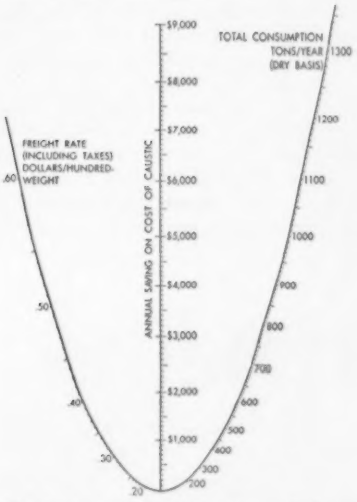
"Nice work, Johnson—now that's what I'd call a well stacked job!"

BRIEFS
for caustic soda buyers

50% or 73%? Choosing a supplier New producing point

50% to 73%— some save, some don't

To estimate quickly whether you can save by switching from 50% to 73% liquid caustic soda, simply draw a line on this nomograph.



Start at your freight rate and draw to your annual consumption in tons, dry basis. Your approximate savings on freight will appear where you intersect the center line.

From this figure, subtract annual depreciation for dilution equipment. (We'll be glad to advise you on cost of this equipment.)

If you still show a saving, it would be wise to consider the big switch seriously.

For more facts on the economics of 50% and 73% caustic, check the coupon for a copy of our pocket-size *Caustic Soda Buyer's Guide.*

And for specific technical advice centered on *your* requirements, just phone or write the nearest Hooker sales office.

Choosing a supplier

Service is a large part of what you pay for when you buy caustic soda.

Here are some important "service" points to look for when you're considering a source of supply. (As a Hooker customer, you enjoy *all* of them.)

1. Supply security. How flexible are your supply lines? For instance, a supplier with plants and stock points on deep water may be able to offer you a choice of rail or water delivery. This can assure you steady supply in case of rail service interruption.

2. Realistic contracting. Your agreements with your supplier should realistically reflect your expected needs *and* the supplier's ability to consistently deliver the tonnage you need. Best yardstick for measuring this ability is a supplier's performance record. Hooker, for example, has an unbroken 50-year record of fulfilling contract commitments.

3. Engineering help. A supplier's engineering staff can help you set up a new caustic handling system—or revamp an old one—with advice, and with actual design assistance.

4. Safety programs. The men in your plant who handle caustic soda can benefit from safety suggestions offered by your supplier. You should have on tap the latest in safety equipment, plus up-to-date information on the safe handling of caustic soda.

We'd be happy to enlarge on these points, with your caustic requirements in mind. A phone call or note to the nearest Hooker sales office will bring you the specifics.

New source on stream

Put a pin just north of Vancouver, B. C. on your map of caustic soda supply points.

Here in the city of North Vancouver, a new $11 million chlor-alkali plant is now on stream. The plant was built and is operated by Canadians for industry in Canada.

The new Hooker Chemicals Limited plant is Canada's first domestic source of caustic soda and chlorine west of the Rockies. It shortens supply lines, provides small but real freight savings, eliminates the need to pay duties on caustic and chlorine, and makes for faster all-around service.

If your company is already operating plants in British Columbia, or plans to build in this great, growing territory, this is a good time to discover how Hooker Chemicals Limited can serve you.

Check items you'd like to receive:

☐ *Caustic Soda Buyer's Guide.* Lists advantages of 50% and 73% solutions; comparative costs; capacities of tank cars and other containers; useful shipping information.

☐ Technical data on caustic soda.

Need information on these other Hooker products used in the pulp and paper industry? Check here for technical data sheets:

☐ Chlorine, liquid
☐ Pulp Bleaching
☐ Sodium Sulfide
☐ Sodium Sulfhydrate

Clip and mail to us with your name, title, company address.

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HOOKER ELECTROCHEMICAL COMPANY
1806 FORTY-SEVENTH STREET, NIAGARA FALLS, N. Y.

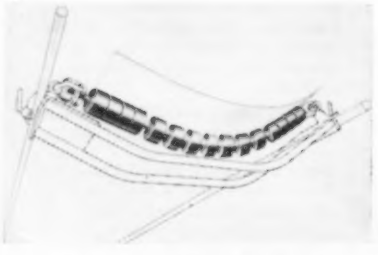
Sales Offices: Chicago Los Angeles New York Niagara Falls Philadelphia Tacoma Worcester, Mass.
In Canada: Hooker Chemicals Limited, North Vancouver, B. C.

with absorbing liquid which is automatically maintained at a fixed pH to minimize corrosion and consumption of neutralizing chemicals. The final stage is designed for entrained moisture droplet removal.

Metal Detector Prevents Machinery Damage

A metal detector designed to prevent metal objects from entering and ruining costly machinery is now offered by Rader Pneumatics, Inc., 1739 N.E. 42 Avenue, Portland, Ore. It stops conveyors when any magnetic or nonmagnetic metal passes over the detector coil. It will aiso activate any electrical circuit to stop chippers, sound alarms, or flash warning lights. Once detected, the metal can then be removed before it damages gears, teeth, blades and knives.

Simple to install, needing no maintenance, the metal detector draws only 250 watts on 110 volts. Oscillator, control unit, power rectifier and receiver are unitized so that parts are simply plugged in with no internal wiring.



Novel Conveyor Belt Set-up Is Very Versatile

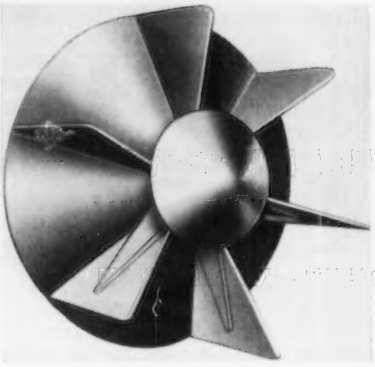
A new twist in bulk materials handling is used in Joy Limberope belt conveyors to lower initial cost and increase versatility. By suspending flexible Limberoller idlers between parallel stringers of steel wire rope, Limberope eliminates rigid support framing. The whole system has fewer parts than ordinary belt conveyors, and is much lighter. It is easy to relocate or extend.

Although assembly characteristics may differ in each installation, Limberope usually consists of two parallel strands of wire rope stretched between widely separated anchor points. Rigid stands with integral return idlers support the ropes every 12 to 40 ft., depending on the load. The carrying idlers are swivel mounted in rigid brackets and slung between the ropes. Hand screws secure all components. The idler itself consists of a series of neoprene discs molded to a neoprene covered cable that is suspended in a catenary between two sealed bearings.

Details on the Limberope conveyors are contained in bulletin NR-6C from Joy Manufacturing Co., Henry Oliver Bldg., Pittsburgh, Pa.

Fan Wheel for Exhausting Air with Fibrous Material

An industrial fan wheel especially designed for exhausting air containing clinging type fibrous material, such as



trim from corrugated box and paper machines, has been introduced by the Chicago Blower Corp., 9867 Pacific Ave., Franklin Park, Ill.

Constructed with a heavy back plate, fins and steel spider, the wool wheel, as it is called, features a sloping surface back of the fan blades to prevent fibrous material from clinging. In addition, the fan utilizes a cone over the hub to further inhibit clinging action.

Manufactured in wheel sizes ranging from 9½ to 60½ inches, the steel plate exhausters are capable of moving from 200 to 50,000 cfm of air at static pressures up to 15 inches. The fans are made in two classes for temperatures ranging up to 1,000° F.

OBITUARIES

Charles Evans, 87, retired secretary-treasurer of the former Stokes & Smith Co., makers of paper boxes and packaging machinery, died at his home in Cinnaminson Township, N. J.

Mr. Evans was associated with the Stokes & Smith firm for 38 years before he retired eight years ago. The firm is now a division of the Food Machinery & Chemical Corp.

Carl Riordon, 82, founder and first president of the Canadian Pulp and Paper Assn., died in a Montreal hospital June 14.

Mr. Riordon once headed his own concern, the Riordon Pulp and Paper Co. He became a director of the Canadian International Paper Co. when that firm absorbed Riordon.

Robert McC. Johnstone, 66, head of the Johnstone Engineering and Machine Co. in Parkesburg, Pa., died June 22 at his home in Christiana, Pa., after a long illness. Before establishing his business in 1940, Mr. Johnstone was vice president of the Camerion Machine Co., Brooklyn, N. Y.

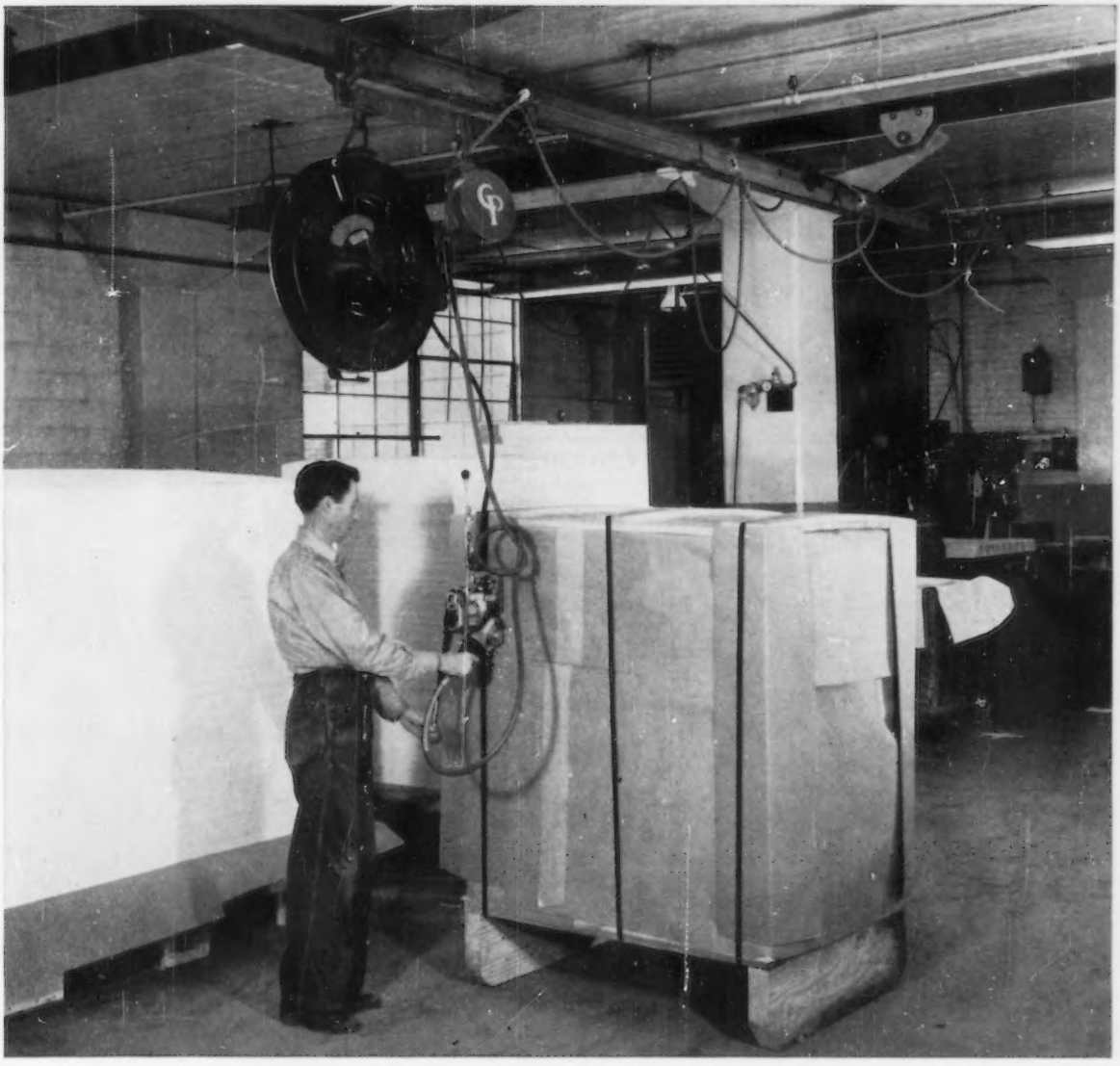
Paul B. Wyant, 53, treasurer of Scott Paper Co. died unexpectedly June 14 at his home in Broomall, Pa.

William J. Robinson, 86, retired general superintendent of the National Vulcanized Fibre Co. and a specialist in the production of vulcanized fiber, died June 17 in the Memorial Hospital, Wilmington, Del.

William M. Gillingham, 47, died unexpectedly of a heart condition on June 9 at his home in Riegel Ridge, Milford R. D., Pa. He had been personnel director of the Riegel Paper Corp., Milford, for 12 years.

Speed Up Your Mail Service

Use Zone Numbers—they accelerate and simplify the processing of your mail; they effect earlier dispatch and delivery of mail. Obtain zone numbers of customers and clients. Include them on all correspondence.



Fast new way to strap paper skids

Strapping paper skids is fast and easy with a setup like this. The bridge crane gives mobility to the strapping equipment, and obstruction-free working space on the floor. Signode's new AP-34 air-powered strapping machine applies strap almost effortlessly, in seconds. This Signode design setup makes skid strapping a much more efficient and easy operation. It saves important time and, in addition, frees valuable floor space. A Signode field engineer will be glad to work with you to develop complete strapping stations in your plant, tailored to your needs. Let him help you save time and money now. Write:

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PRICES OF FIBERS

MARKET WOOD PULP

THIRD QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	‡$90.00/ —	‡$90.00/ —	‡$90.00/ —
Bleached Gw'd. ...	$97.50/100.00	$97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	$157.00/162.50*		$157.50/ —
Kraft, Blchd. Hdwd	152.00/ —		$137.00/ —		
Kraft, Semi-bleached	140.00/ —	140.00/ —			
Kraft, Unbl. ..	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd. ...	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	155.00/ —
Sulphite Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd.	135.00/ —	135.00/ —	†135.00/ —	*130.00/ —	
Sulphite, Unb'l. Gl'sn		134.00/ —	†134.00/ —		
Soda, Blchd. ...	147.00/150.00	150.00/ —			

‡ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

NEW YORK RAG MARKET

PRICES NOMINAL

New Domestic Cotton Cuttings

Delivered Mill Basis

	Per 100 lbs.
No. 1 White Shirts	$13.50/$14.50
No. 1 Unblchd. Muslins	16.00/ 17.00
Blchd. & Unblchd. Underwears	15.00/ 16.00
No. 1 Light Cream Silesias	12.00/ 13.00
No. 1 Light Blue Overalls	7.00/ 8.00
Percales	6.00/ 6.50
No. 1 Light Prints	5.00/ 5.50
Suntan Khakis	5.75/ 6.75
Cottonades	3.00/ 3.50
No. 1 Washables	2.50/ 3.25

Old Domestic Cotton Rags

Delivered Mill Basis

	Per 100 lbs.
Mixed White	$3.25/$3.75
Cotton Pants & Overalls	2.25/ 2.75
Twos and Blues, Repacked	2.00/ 2.50
No. 2 Roofing	.60/ .75

COTTON LINTERS

Memphis Market

f.o.b. Oilmills

Week Ended June 20	Per 100 lbs.
Grade 1‡ n. a.	
2‡	
3‡	$9.50/ $8.00
4‡	7.50/ 7.00
5‡ 1 cut—felting	6.50/ 6.00
6‡	5.50/ 5.00
7‡	5.00/ 4.50

*Based on 73% cellulose.

OLD ROPE & BAGGING

(Prices to Dealers, f.o.b. N.Y.)

	Per 100 lbs.
New Burlap Cuts	$4.50/$5.50
Scrap Burlap	3.50/ 4.25
Australian Wool Pouches	5.00/ 5.50
Gunny	4.50/ 5.00
No. 1 Domestic Manila Rope	6.25/ 7.50
No. 1 Foreign Manila Rope	5.25/ 6.25
Domestic Sisal Strings	4.00/ 4.50

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	June 23	June 23	June 23	June 23
No. 1 Mixed Paper	$5.00/ $7.00	5.00/ 7.00	4.00/ —	12.00/ —
No. 1 News	11.00/ 12.00	12.00/ —	14.00/ —	14.00/ —
Overissue News (Lg. size)	11.00/ 14.00	11.00/ 13.00	19.00/ —	18.00/ —
Mill Wrappers	10.00/ 13.00	10.00/ 12.00	7.00/ —	13.00/ —
Old Corrugated Containers	21.00/ 22.00	20.50/ 21.00	19.00/ —	20.00/ —
Super Resorted Kraft Paper	30.00/ 35.00	35.00/ 45.00	35.00/ —	45.00/ —
New Double Kr. Ld. Corr. Cuts	25.00/ 30.00	30.00/ 35.00	35.00/ —	30.00/ —
(Semi-chem. medium)	40.00/ 45.00	37.50/ 45.00	40.00/ 45.00	30.00/ 35.00
New 100% Kraft Corr. Cuts	50.00/ 55.00	50.00/ 55.00	50.00/ —	45.00/ —
New Br. Kraft, Env. Cuts	65.00/ 70.00	70.00/ 75.00	50.00/ —	50.00/ 55.00
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	50.00/ —	55.00/ 60.00
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	60.00/ —	55.00/ 60.00
No. 1 Groundwood Shvs.	21.00/ 25.00	20.00/ 25.00	14.00/ —	30.00/ 35.00
White Newsblanks	42.50/ 50.00	45.00/ 50.00	35.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 60.00	60.00/ 65.00	55.00/ —	— / —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	65.00/ —	— / —
Hd. White Shvs.	85.00/ 95.00	95.00/105.00	85.00/ —	85.00/ 90.00
Hd. White Env. Cuts	105.00/110.00	110.00/115.00	90.00/ —	100.00/110.00
Col. Tab. Cards	50.00/ 55.00	55.00/ 60.00	47.50/ —	32.50/ —
Manila Tab. Cards	65.00/ 70.00	70.00/ 75.00	65.00/ —	70.00/ —
No. 1 Col. Ledger	28.00/ 30.00	30.00/ 35.00	40.00/ —	22.00/ —
White Ledger	42.50/ 50.00	45.00/ 50.00	52.50/ —	45.00/ —
Mixed Book & Mag.†	15.00/ 18.00	17.00/ 19.00	12.00/ —	— / —
No. 1 Books‡	19.00/ 23.00	20.00/ 22.00	27.50/ —	— / —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

PRICES OF MATERIALS

Aluminum sulphate:
- coml. bulk, c.l. wks. ....cwt. $2.00 / —
- iron-free, c.l. wks. .. .. cwt. 3.55 / —

Casein, acid prec.:
- dom. sh. pt. c.l. (30 mesh) cwt. 56.00 /
- Arg. ex dock .....cwt. 18.75 /19.25
- New Zealand .....cwt. 23.50 /24.00

Caustic soda:
- c.l. wks. solid, 76% .....cwt. 4.80 / —
- flak. & grd. drums, c.l....cwt. 5.20 / —
- liquid 50% tanks.... 2.90 / —
- liquid 73% tanks.... 3.00 / —

China Clay
- dom., dry-grd., airfloat:
- 325 mesh bgs., c.l. Geo. ton 10.00 /12.00
- 300 mesh, bgs., c.l. Geo. ton 13.50 /14.50
- imp., white, lump, c.l. ex. dock 20.00 /35.00

Chlorine:
- single-unit tanks, works ..cwt. 3.15 /
- multiple unit, 2-5 cars per yr. 5.75 / 4.05

Lime:
- hydrated, bulk, c.l. N.Y. ..ton 23.55 / —
- quicklime, bulk, c.l. N.Y. ton 20.55 / —

Gum rosin:
- K. M, N, drums, c.l. Savan, cwt. 7.75 / 7.85

Rosin size:
- 70%, gum & pale paste, tank cars, south, sh. pt. .....cwt. 7.51 / —

Saltcake:
- dom. bulk, 100% anh. wks. ton 28.00 / —

Soda ash:
- light, 58% ash bags, wks. cwt. 1.85 / —
- bulk, c.l. wks. .....cwt. 1.55 / —

Sodium chlorate:
- drums, c.l., wks. ....cwt. 9.00 / —
- drums, l.c.l., wks. ....cwt. 9.50 /10.50

Sodium peroxide:
- dms., c.l. E. of Miss. ..... lb. .20½/ —
- l.c.l. (same basis) ..... .21 / .21½

Sodium silicate, 40° Be.:
- tank-cars, wks. .....cwt. 1.20 / —
- drums, c.l. wks. .....cwt. 1.55 / —
- 47° Be. WW.
- tank-cars, c.l. wks. .....cwt. 1.90 / —
- drums, c.l. wks. . .....cwt. 2.25 / —

Soybean, protein:
- chem. isol., wks, c.l. bags ..lb. .19 / .23

Starches:
- Corn, multiwalls, c.l. prod. plant:
- pearl .....cwt. 6.49 / 6.75
- white, dextrins .....cwt. 8.08 / 8.20
- chlorinated .....cwt. 8.25 / 8.35
- potato, Idaho, c.l. wks. cwt. 6.35 / —
- East, fr. all. 50 cents cwt.
- potato, Maine, f.o.b. wks. cwt. 6.25 / —

Sulphuric acid:
- 60° Be. cbys. c.l. wks. ....cwt. 2.00 / —
- l.c.l. wks. .....cwt. 2.30 / —
- tank-cars, wks. .....ton 18.60 / —

Sulphur:
- crude, c.l. mines, contract, long ton 23.50 / —
- f.o.b. vessels Gulf dock...ton 25.00 / —

Sulphur dioxide:
- liquid, coml. cyl., wks. ...lb. .10 / .12
- multi-unit cars, wks. ..... lb. .0535/ —

Talc, fibrous grd., bags:
- c.l. wks., N.Y. .....ton 28.00 / —
- l.c.l. wks., N.Y. .....ton 31.00 /36.00

Titanium dioxide:
- anstase, c.l. dlvd. E. bags..lb. .25½/ —
- l.c.l. dlvd. .....lb. .26½/ —
- rutile, c.l. dlvd. .....lb. .27½/ —
- l.c.l. dlvd. .....lb. .28½/ —

Let Du Pont help with your bleachery planning

• An experienced Du Pont technical man presents complete bleachery layout and necessary equipment based on your specific needs. This is Step 4 of Du Pont's unique service plan.

A complete bleachery planning service is Step 4 in Du Pont's exclusive 6-Step Service Plan. In preceding steps of the plan a mill conference and lab trials show the benefits that you may expect from bleaching your pulp with peroxide. A mill trial then proves the performance of peroxide under mill operating conditions.

In Step 4 of Du Pont's exclusive service plan, thoroughly experienced Du Pont technical specialists work closely with your engineering personnel and/or outside consultants in planning your bleachery. Based on your particular mill's needs, a complete bleachery layout is presented.

You can rely on Du Pont's skilled technical men, who have assisted the great majority of mills that have switched to or adopted peroxide bleaching. Their experience includes mills producing all types of pulps – groundwood, chip mechanical, kraft, sulfite or pulp recovered from waste paper.

Du Pont's proven 6-Step Service Plan can help you produce high-brightness pulps with premium strength and excellent brightness stability. For more details about this plan, just contact your nearest Du Pont District Office, or write to the address below.

PEROXIDES **ALBONE®** hydrogen peroxide **SOLOZONE®** sodium peroxide

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... THROUGH CHEMISTRY

ELECTROCHEMICALS DEPARTMENT
Peroxygen Products Division

E. I. DU PONT DE NEMOURS & CO. (INC.)
Wilmington 98, Delaware

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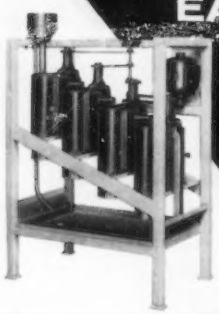

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NEWS OF SUPPLIERS

Spark Testing

Special event day visitors at the Joseph T. Ryerson & Son, Inc. steel service plant in Charlotte, N. C. watch a spark testing demonstration. The operator "reads" the sparks that are given off as he touches a grinding wheel to different analyses of steel. The color, shape, average length, and activity of the sparks are details which are characteristics of the material tested. Spark testing requires a well trained operator and can be a very accurate method of identifying metals.

G. A. Markell
Elwell-Parker

J. M. MacDonald
Appleton Machine

Elwell-Parker Electric Co., Cleveland, has appointed George A. Markell sales manager. He joined Elwell-Parker in 1948 in its production department. In 1950, he was reassigned to the company's sales department and has been assistant sales manager since 1956.

Appleton Machine Co., Appleton, Wis., has promoted John M. MacDonald to manager of market development. For the past five years he has represented the firm as sales engineer in its eastern division.

Midwest Piping Co., Inc., St. Louis has re-opened sales offices in Atlanta and Tulsa.

The Atlanta office, under the direction of John Castleman, is at 72 Eleventh St., N. E., Atlanta 9. The Tulsa office is headed by Claude L. Doughman and located at 1640 East Twenty-first street, Tulsa.

Two new sales representatives at Houston are C. B. Moore, for many years with the Jones & Loughlin Supply Division in Houston, and Cecil Hilliard, formerly with Republic Supply Co. and more recently independently engaged in the oil field supply business in Houston.

Goulds Pumps Inc., Seneca Falls, N. Y., has appointed A. H. Barben to the board of directors. He fills the vacancy caused by the death of H. Garnsey Jr., former vice president and general manager. Mr. Barben, who has been with the company since 1927, was for many years superintendent of No. 1 plant and since February 1956 has been works manager.

C. C. Brumbaugh

R. C. Sutter
Diamond Alkali Co.

Diamond Alkali Co. has appointed C. C. Brumbaugh, its director of engineering since June, 1954, a vice president for engineering, research and related technical aspects. Named to succeed Mr. Brumbaugh as director of engineering is Robert C. Sutter, operations manager of Diamond's Chlorinated Products Division for the past year and a half.

K. L. Rohde Jr.
Dewey & Almy

W. E. Conklyn
Fife Mfg.

Dewey and Almy Chemical Co., division of W. R. Grace & Co., has assigned Karl L. Rohde Jr. as sales representative for organic chemicals for Southern California. Mr. Rohde's headquarters will be in Los Angeles.

Fife Manufacturing Co. Inc., Oklahoma City, manufacturer of automatic web guiding equipment, has appointed William E. Conklyn vice president—sales. Mr. Conklyn will be in charge of the company's Baltimore, Md., sales office which services the states of Maryland, Virginia and portions of other adjacent states.

C. Kerekes
Cameron Machine

R. R. Kindron
Becco

Cameron Machine Co., Dover, N. J., manufacturers of slitting and roll winding equipment, has announced the appointment of Charles Kerekes as sales representative. Mr. Kerekes will cover Florida, Georgia, Mississippi, Tennessee and the Carolinas. He joined Cameron last year after having been associated with a leading manufacturer of testing machinery and electronics equipment.

Becco has promoted Robert R. Kindron to technical assistant to the New England sales manager of its chemical division. He will work out of Becco's New England office, on Fountain St., Framingham, Mass.

Mr. Kindron joined Becco in 1947 as a research chemist. Since 1953 he has been a sales representative in the New England area.

Arthur D. Little Inc., Cambridge, Mass. industrial research company, has recently placed in operation a new pilot-plant coating laboratory. It is used primarily in connection with development work being done for clients, but a limited amount of time is available for custom experiments in the coating field. The unit was designed to bridge the gap normally existing between laboratory development results and actual production. It is equipped with a two-zone convection oven, in each of which temperatures can be controlled between 100 and 550°F. The coating head provides reverse roll, knife and wire-wound rod coating as well as saturation methods.

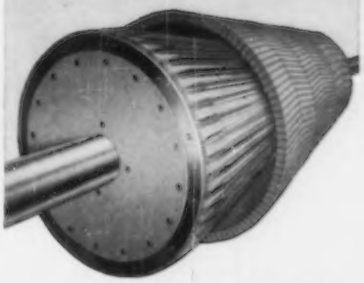
Paper Converting Machine Co. . . .

. . . has recently completed a new 76,000 sq. ft. plant in Green Bay, Wis. Built on a site south of the city it has 54,500 sq. ft. of shop space plus 21,500 sq. ft. of space for general offices and engineering. Only one wall is considered permanent and future expansion is simply a matter of moving one of three demountable walls.

A New Filling Combination that will SAVE MONEY IN YOUR MILL

E.D. Jones

Adapta-Plug



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Huyck's Seventh Felt Workshop at Rensselaer

Huyck Felt Co., Rensselaer, N. Y., recently held its seventh Felt Workshop, playing host to 23 papermakers from mills in the United States and Canada. Graduates, seated in the front row, left to right, are: Dr. C. Laviste, Richmond Pulp and Paper; J. Stanley, Johns-Manville; C. C. Phelps, Brownville Paper Co.; P. Gappa, Wausau Paper Mills; G. Mead II, Consolidated Water Power and Paper; R. Shenberger and A. C. Miller, P. H. Glatfelter; J. McCormell, Strathmore Paper; F. R. Valentine, Homasote Co.; C. E. Doull, Brownville Paper Co.; J. G. Caldwell, North End Paper Co.; T. Manion and R. M. McIlvain, Downingtown Paper Co.; Others not shown are: M. Velguth, Fort Howard Paper Co.; G. W. Hallam, Alliance Paper Mills; C. Martens, Lee Paper Co.; J. Smith, Putney Paper; L. A. Autuori and M. J. Bull, Raybestos-Manhattan; J. C. Bloom, Oxford Paper; J. Chinn, Consolidated Water Power and Paper; K. Martin and L. Finnegan, St. Regis. Members of Huyck Felt Co. staff, standing left to right, are: W. H. Hodges, G. N. Fitzgerald, T. M. Alexander, J. P. LaRue, W. H. Houff, R. T. Clarke, F. A. Soderberg, I. Peters, J. D. Skeer, E. D. Rhodes, H. S. Dahlberg and R. A. Jensen.

Morningstar-Paisley Inc., New York City, has signed an agreement for the acquisition of Thurston & Braidich, importer and processor of water-soluble gums, for an undisclosed amount. The combined operation, which becomes effective on July 1, will be one of the most modern, fully integrated processors of water-soluble gums, from the raw material to the finished product.

The Thurston & Braidich Division of Morningstar-Paisley, Inc., and its products, including its vanilla bean line, will be added to Morningstar's wide variety of gums and food products. All manufacturing operations will be done at Morningstar's recently completed gum processing plant in Hawthorne, N. J. Thurston & Braidich management will move from the present location at 286 Spring St., to Morningstar's offices at 630 West 51st St.

Air Reduction Co. Inc. plans to build a new chemical plant and an extensive pilot plant facility costing in excess of $12,000,000. The plant, which will be constructed at Calvert City, Ky., will produce 20 million pounds per year of polyvinyl alcohol resin. The project will include an expansion doubling the capacity of the existing 45 million pounds per year vinyl acetate monomer plant. This expansion for vinyl acetate monomer is required by reason of the fact that approximately two pounds of vinyl acetate monomer are required to make one pound of polyvinyl alcohol resin.

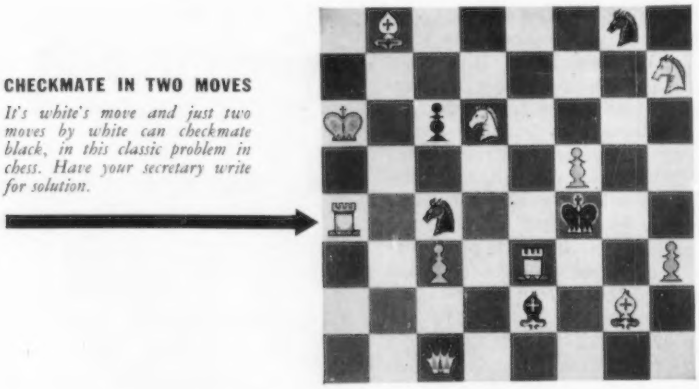
Allis-Chalmers has appointed Russell A. Erickson resident representative of the Albuquerque, N. M., office of its Industries Group.

Albert O. Furter has been assigned to the Milwaukee district office of Allis-Chalmers Industries Group.

Rudolph Almaguer has been assigned as a sales representative to the New York district office of Allis-Chalmers International.

CHECKMATE IN TWO MOVES

It's white's move and just two moves by white can checkmate black, in this classic problem in chess. Have your secretary write for solution.



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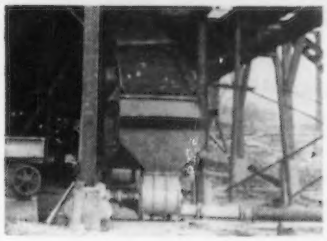

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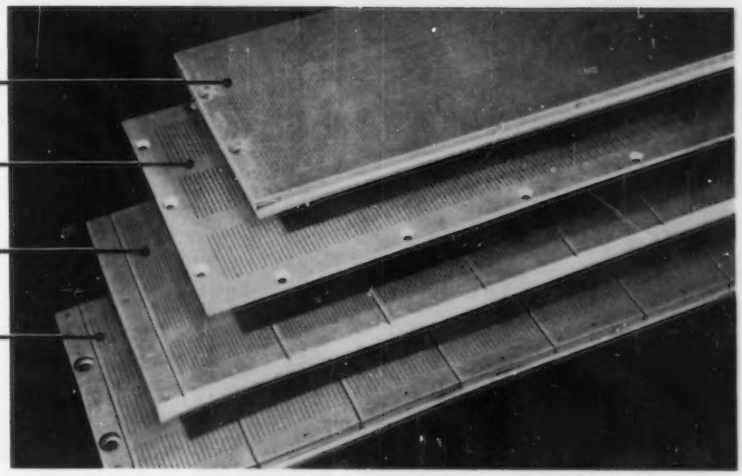

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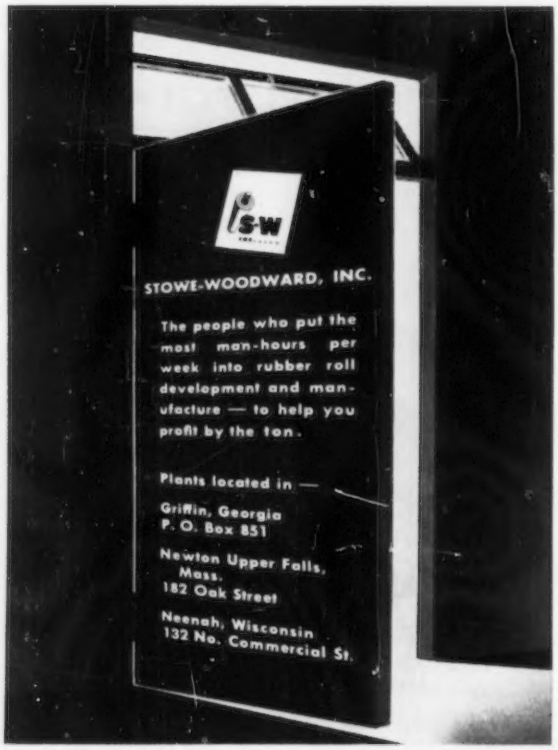
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Position entails development work on products for both wet end and surface treatments of all types of paper and paperboard. Laboratory work is to be supplemented by mill trials. Experienced paper chemist or man with formulation experience on specialty products for the paper industry desirable.

A promising career opportunity is offered in our established industrial concern. In joining our Company you become part of a team that is geared to the future—whose markets are as basic as are the industries it serves—yet we are small enough to quickly reward individual initiative and ability.

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Age 35-45. Middle Atlantic Area. Must be familiar with the manufacture of lightweight Fourdrinier Specialty Papers. Institute or Paper School Graduate preferred. Excellent opportunity. State full experience. Address Box 58-154 care Paper Trade Journal.

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PAPER MAKING SUPERVISOR

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Paper Mill Engineering and Production Executive desires to invest in small paper or board mill or paper converting operation with active participation in management. Particular interest in situation involving modernization or expansion. Send details to Box 58-156, Paper Trade Journal.

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EXECUTIVE—Conversion of Boards and Papers. Currently Works Manager; desire change for challenging opportunity. Highly successful record in organization, production and development. Address Box 58-122 care Paper Trade Journal. J-30

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1—138" Fourdrinier Machine complete, S. S. Headbox and inlet, Suction couch, Suction press, 2 plain presses,
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1—84" Fourdrinier Machine, Suction Press, plain press 20 dryers, 48" dia., 80" face, 7-Roll Calender Stack, Pope type Reel, Two Drum Winder, enclosed spiral gear drives. Variable speed drive units. Trims 74", speed to 750 F.P.M.

1—100" Fourdrinier, Suction Couch, Suction Press, 2 Plain Presses, 30 dryers 48" x 98" face, 3 Calender Stacks, Reels, Winder and Drive. Trims 88". Speed 500 to 600 F.P.M.

1—132" Yankee Tissue Machine, plain press, Dryer 10' dia., 132" face, Pressure Roll 22" dia. 133" face, 3-Roll Calender Stack, Pope Type Reel, Beloit 2-Drum Winder, Jones enclosed Drives, Pulper, Jordan, Pumps etc. if desired.

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1—G.E. 100 H.P. MG Set, 250 Volt D.C.
1—250 H.P. Ingersoll Rand Diesel Engine Generator—G.E. Generator, 150 KW, 480 Volts, 720 RPM.
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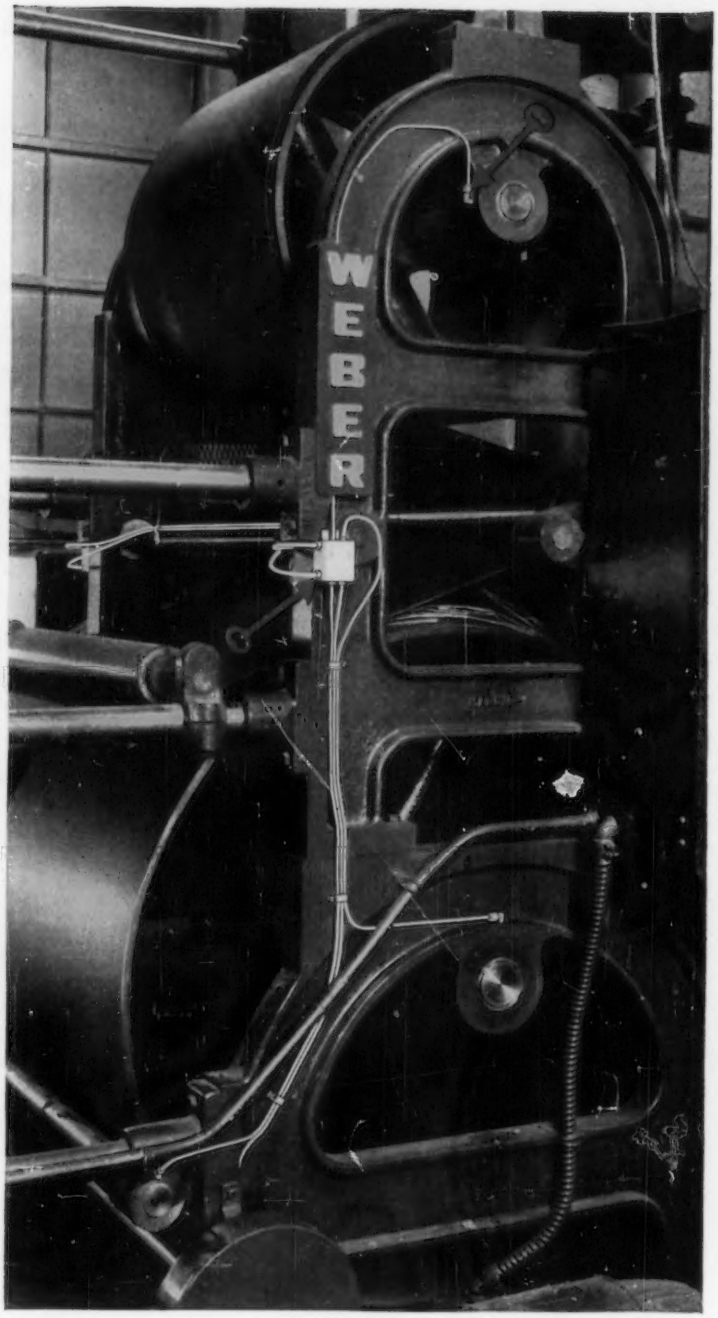

THIS Weber Bag Making Machine at Bemis Bro. Bag Company's Vancouver, Washington, plant has been in continuous trouble-free operation for over 3 years. Its modern Farval system—continuously delivering measured amounts of lubrication at regular intervals—has eliminated all downtime due to either faulty lubrication or bearing loss.

Bemis Bro. Bag report their Farval system saves over 20% in lubricant required as well as contributing to the over-all cleanliness of the general work area. This is most important in the paper bag industry, because a dirty, stained product means rejects—lower profits.

Investigate how a Farval system can solve your lubrication problems. Write today for Revised Bulletin 26-S, The Farval Corporation, 3252 East 80th St., Cleveland 4, Ohio.

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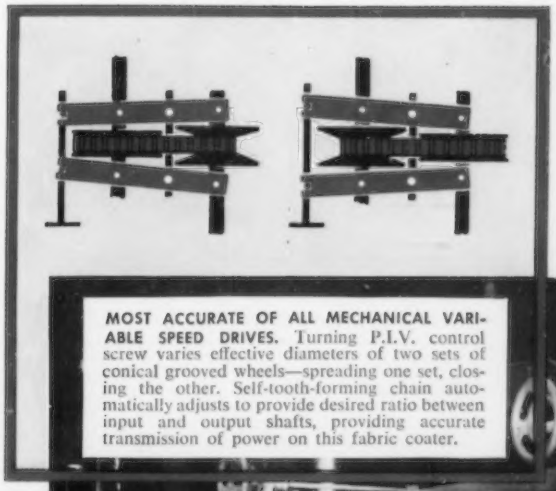
FARVAL—Studies in Centralized Lubrication No. 219

Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing. In Canada: Peacock Brothers Limited.



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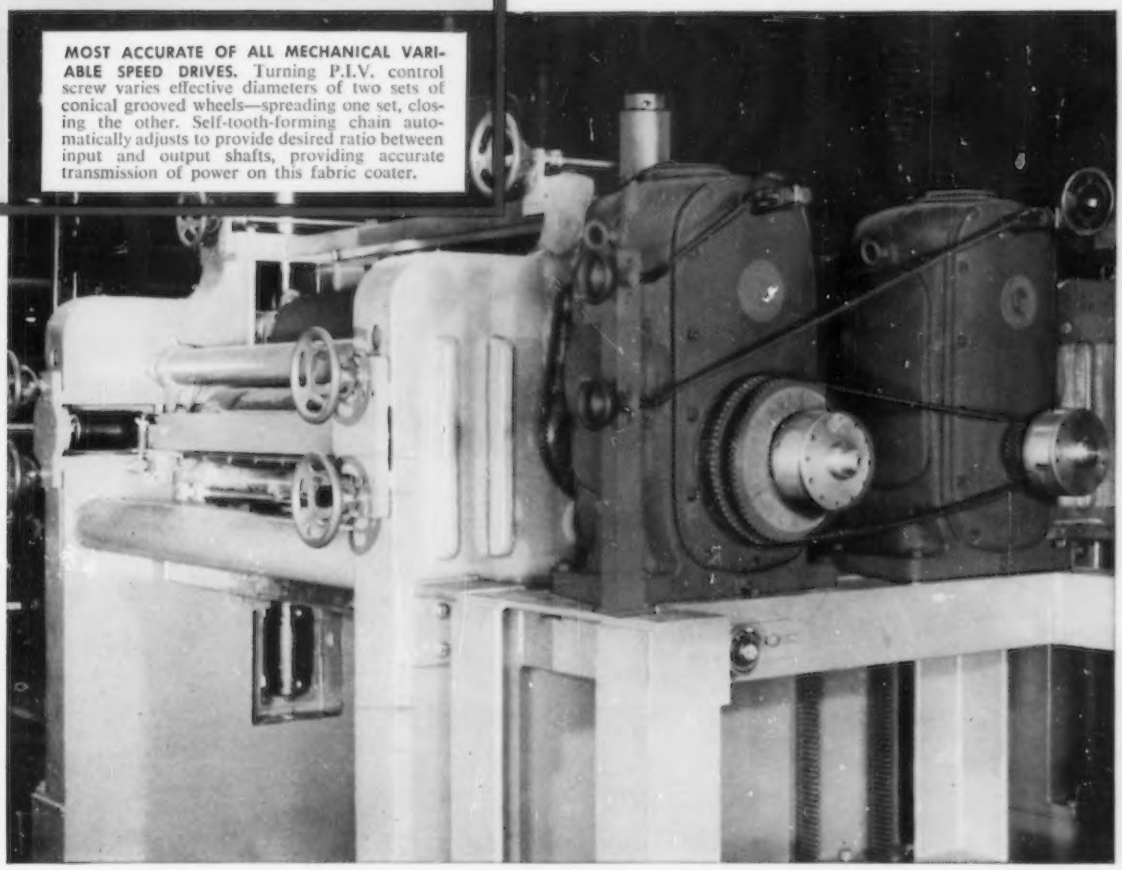

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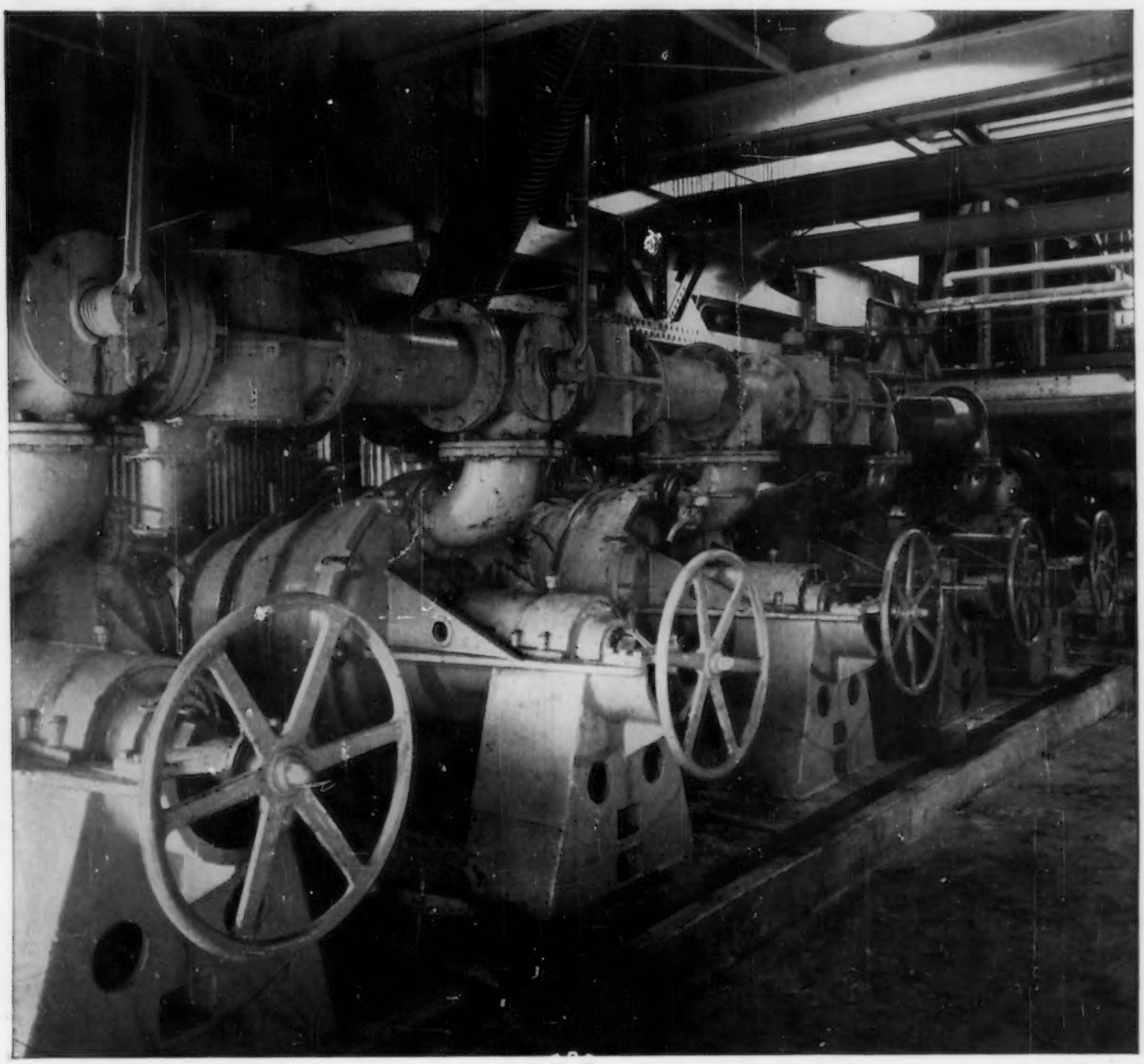

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